

**In re High-Tech Employee Antitrust Litigation**

Expert Witness Report of

Kevin F. Hallock

May 10, 2013

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## I. Qualifications

1. I am the Donald C. Opatrny '74 Chair of the Department of Economics, the Joseph R. Rich '80 Professor, Professor of Economics and Human Resource Studies and Director of the Institute for Compensation Studies at Cornell University in Ithaca, NY. I am also a Research Associate at the National Bureau of Economic Research in Cambridge, MA and a Distinguished Principal Researcher at The Conference Board in New York, NY. Additionally, I serve on the Compensation Committee of Guthrie Health in Sayre, PA and on the Board of Directors of the Society of Certified Professionals at WorldatWork in Scottsdale, AZ. I earned a B.A. in Economics at the University of Massachusetts at Amherst in 1991 and a Ph.D. in Economics from Princeton University in 1995. I previously taught at the University of Illinois at Urbana-Champaign from 1995-2005 and have been at Cornell University since 2005.

2. My work has covered a variety of fields including compensation design, executive compensation, the relationship between labor and financial markets, wage differentials and inequality, the effects of job loss, and labor economics. My work has been published in a variety of outlets including *The American Economic Review*, *The Journal of Economic Perspectives*, the *Journal of Labor Economics*, the *Journal of Public Economics*, the *Journal of Corporate Finance*, *Labour Economics*, the *Industrial and Labor Relations Review*, *Research in Personnel and Human Resources Management*, and *Research in Labor Economics*. I have edited or co-edited a variety of volumes including co-editing *Labor Economics* (1995) and *The Economics of Executive Compensation* (1999). My book regarding compensation, *Pay*, was published in 2012.

3. I have served as a referee for over 40 different academic journals, I previously served as an Associate Editor at the *Journal of Labor Economics* and at *Economics Bulletin* and am currently an Associate Editor at *Labour Economics*, am on the editorial board of the *Industrial and Labor Relations Review*, and am on the advisory boards of the *Journal of People*

*and Organizational Effectiveness and Compensation and Benefits Review*. I have given lectures at over 30 different Universities. I have taught courses at Cornell on Managing Compensation, Executive Compensation, Pay, Finance for Human Resources, and Labor Economics. A more complete description of my qualifications is included in my curriculum vitae in Appendix A.

4. In connection with this matter, I reviewed and considered materials from this case, including the consolidated amended complaint, depositions, deposition exhibits, and salary or market pay range materials produced by or compiled from materials of each defendant. Information that I considered in forming my opinions include the items listed in Appendix B or listed in this report and any attached exhibits. The bases for my opinions are described in this report and any attached exhibits. I reserve the right to supplement this report in view of any new material or information provided to me after the date of this report.

5. My compensation for my work in this matter is not contingent upon my findings or the outcome of this litigation. I am being compensated at my current hourly rate of \$750 per hour.

## **II. Assignment and Summary of Conclusions**

6. I understand that plaintiffs are seeking certification of a class of salaried technical, creative, and research and development employees (the “Class” or “Technical Class”), consisting of those described in Appendix B to the October 1, 2012 Expert Report of Dr. Edward E. Leamer, and who worked for a defendant while that defendant participated in at least one “no cold-call” agreement with another defendant.

7. I have been asked by counsel for the plaintiffs to:

- a. Analyze defendants’ pay practices to determine whether defendants used formal administrative pay systems; and

- b. Determine whether suppressing recruiting of defendants' workers, including technical workers, are predicted to have led to the result of suppressing the pay of their employees, including all or nearly all members of the Technical Class, including those with different job titles.
- 8. As a result of my work to date, the following are among my conclusions.
  - a. The defendants had formalized compensation systems. These include using market surveys, having clear structures, using market pay lines, grades and many other features of formalized compensation systems.
  - b. The defendants made use of the ideas of compensation beyond salary. These other forms of compensation include components such as bonuses and stock.
  - c. Issues of internal equity and equity in general were important to defendant firms. Whether they used the terms or not, the concepts of internal equity and also generally treating similar employees similarly were important to defendant firms.
  - d. Pay moved in defendant firms in systematic and structured ways.
  - e. Restrictions on cold-calling clearly had impacts on employees among the defendant firms. In particular, restrictions on cold-calling hamper compensation levels for employees. The restrictions could be expected to hamper levels of compensation for those who would have been cold-called and for all or nearly all salaried employees of defendant firms.
  - f. Agreements such as restrictions on cold-calling could be expected to limit and have negative consequences on employee compensation for those

workers directly involved and for nearly all salaried employees. Given the formalized pay structures and compensation design in defendant firms, nearly all salaried employees could be expected to have pay that would otherwise be higher.

- g. The formalized systems in place at the defendants relied on structures, external data from the market and the like, and notions of equity were present at defendants. As a result, those effects cycle on to other employees and their levels of compensation. Therefore, the formal compensation structures could be expected to lead to an effect on nearly all class members.
- h. Although I have not been asked to estimate the magnitude of damages in this case, based on my knowledge of compensations systems and the materials considered, I believe that agreements against cold calling, such as the agreements at issue in this case, are predicted to suppress the compensation of all or nearly all members of plaintiffs' proposed Technical Employee Class, including those with different job titles.

### **III. Prior Testimony**

9. I have testified at a deposition twice and have not testified at a trial. During the previous four years, I have testified as an expert at a deposition in the following case: *William Hale Hubbell vs. G.J. Ratcliffe, Richard W. Davies, Andrew McNally IV., individually and as trustees*. I have never before testified as an expert in a class action lawsuit.

#### **IV. Compensation System Design**

10. Many firms use administrative pay systems.<sup>1</sup> These systems typically include standardized features, such as job analysis, job evaluation, use of market surveys and external market data, market pay lines and salary bands and zones or grades and ranges. This section briefly outlines the features of these systems.

11. It is noteworthy that an important feature of these systems is that often the internal structure is set in advance of using external compensation information. When setting up these systems the internal structure is set and then external data is then matched to the internal structure to set pay levels.

12. Many organizations have a business strategy that is then linked with a compensation strategy and philosophy. Organizations often start with their own compensation strategy, which of course can evolve over time, before setting up the more technical features of the pay system.

13. Job analysis is the “systematic process of collecting information that identifies similarities and differences in the work”.<sup>2</sup> Harvey (1991) notes two important features of job analysis. First, job analysis should describe observable characteristics of jobs. Second, individual people in those jobs should be kept separate from the job analysis. To be sure, individual differences matter in compensation design but are not used at this point in the evolution of a compensation system.

14. Job analysis can become very specific and detailed. In fact, Martocchio (2004) points out very specific details of job elements in job analysis such as element, task, position,

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<sup>1</sup> See, for example, Milkovich, Newman and Gerhart (2011, 2014), Martocchio (2004), or Hallock (2012).

<sup>2</sup> Milkovich, Newman and Gerhart (2011), p. 97.

job, job family, and occupation.<sup>3</sup> This begins with an “element,” which could be as simple as putting a piece of paper in a scanner to scan a document all the way up to a “job family”. The rest of the list from Martocchio (2004) just aggregates to higher and higher levels. A “Task” is the next up from an element. A position is a group of tasks that make up the activities that a specific employee might perform. For example a junior administrative assistant might make flight reservations, distribute mail, answer phones and perform related activities. A job may be reflected in a set of positions. For example, there might be many different junior administrative assistants all doing a very similar job. The job family is the next level up.<sup>4</sup> A job family might be administrative jobs, or technical jobs, or marketing jobs. Different organizations may do this differently. Overall structure is what is important.

15. An additional step in performing a job analysis involves collecting information on job content (e.g. tasks, activities, work demands), characteristics of employees who hold these sorts of jobs (e.g. technical skills, manual dexterity, leadership), internal relationships (e.g. supervisors, peers), and external relationships (e.g. regulators, customers, suppliers).<sup>5</sup> Henderson (2006) describes a series of examples of questionnaires that are used by firms to collect this kind of information in their organizations. O\*NET<sup>6</sup> --a revision of the U.S. Department of Labor Dictionary of Occupational Titles--is an example of these systems. O\*NET has extraordinary detail of the characteristics of hundreds of jobs but includes a set of overarching descriptors: knowledge, skills, abilities, work activities, interests, work content, and work values.

16. Job evaluation is the next step in setting up a pay system using a job-based structure as described here. Job evaluation “is the process of systematically determining the

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<sup>3</sup> Martocchio (2004), page 198.

<sup>4</sup> Hallock (2012), page 63-64.

<sup>5</sup> Milkovich, Newman and Gerhart (2011), Hallock (2012) and others discuss these issues.

<sup>6</sup> See <http://online.ontcenter.org>.



relative worth of jobs to create a job structure for the organization. The evaluation is based on a combination of job content, skills required, value to the organization, organizational culture, and the external market. This potential to blend organizational forces and external market forces is both a strength and a challenge of job evaluation”.<sup>7</sup>

17. Companies sometimes use formulaic approaches to identify relative differences in their jobs before benchmarking them to external data. One approach to this is sometimes called the “point method,” in which each job in the organization is assigned a set of “points” as I will describe further below. For example, suppose that the Engineer I job is assigned<sup>8</sup> 530 points, the Engineer II job is assigned 640 points and the Senior Engineer job is assigned 935 points. This necessarily suggests that the Engineer II job contributes less than the Senior Engineer job but more than the Engineer I job. It is important to note that the points don’t necessarily ultimately result in a linear scale in terms of pay.

18. Obviously there are many ways to order or rank jobs. One example of a formalized system is that used in classification of U.S. Government jobs as displayed in Figure 1.<sup>9</sup>

19. The point system has many important features, including compensable factors, scaling, weighting, and degrees. Benchmark jobs are important since they are jobs that will ultimately be used to match the internal structure that is now being discussed with the external market. Benchmark jobs are typically jobs that are relatively well-known and are common so that information can be collected about them internally and externally. However, even in the absence of perfect benchmark jobs, these systems can operate.

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<sup>7</sup> Milkovich, Newman and Gerhart (2011), pp 129-130.

<sup>8</sup> I describe where these points in this hypothetical example come from below. More detail can be seen in Chapter 6 of Hallock (2012).

<sup>9</sup> Source: United States Office of Personnel Management: <http://www.opm.gov/oqa/11tables/pdf/DCB.pdf> See Hallock (2012), p 69.

20. In developing a point system, the next step is to identify “compensable factors,” i.e., the factors for which the company sees value. These might include, for example: technical ability, leadership, responsibility, communications, and working conditions.<sup>10</sup> The idea is that more of each factor should be linked to more productivity and (ultimately) higher pay. Note, however, that we still aren’t yet focused on pay levels – just on differentiating jobs. Also note that one of the factors, working conditions, is unique in that poorer conditions may lead to higher pay as a compensating differential.<sup>11</sup> Working conditions, per se, are not necessarily a positive attribute of work but they are a factor that may need to be compensated.

21. Once each compensable factor for a job is defined, a set of degrees for each factor is created. There does not have to be a common set of degrees for each factor. Martocchio (2004) includes examples of degrees for the compensable factor he defines as writing ability. These range from degree one that includes “simple phrases and sentences” up to degree five that includes “manuals and speeches”.<sup>12</sup> It is important to note that the degrees need not be evenly or linearly spaced. For example, one could set aside 100 points for writing ability and have five degrees of writing ability. One could assign a job with writing ability as follows: writing ability “one” gets 20 points, writing ability “two” gets 40 points, “three” gets 60 points, “four” gets 80 points, right up to writing ability “five” at 100 points. But this does not have to increase in lock-step. As an alternative, one could assign writing ability “one” 40 points, writing ability “two” 80 points, writing ability “three” 90 points, writing ability “four” 95 points and writing ability “five” 100 points, of course depending on how the each level of writing ability is defined.

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<sup>10</sup> These are precisely the five compensable factors I use in Chapter 6 of Hallock (2012).

<sup>11</sup> See Rosen (1986).

<sup>12</sup> Martocchio (2004), page 219.

22. The next step is to define the weight of each factor. For example, in the hypothetical example I created with five compensable factors, let's define technical ability 50%, leadership 20%, responsibility 15%, communications 10% and working conditions 5%.

23. Next suppose that the firm defines that the maximum number of points any job can get is 1000. This is an entirely arbitrary number. It could be any number but this is a nice round number and makes the discussion easier to understand.

24. So, we have defined that there are 1000 total possible points. We have also created our weights so that means there are 500 possible points for technical ability (50% of 1000), 200 possible points for leadership (20% of 1000), 150 possible points for responsibility, 100 possible points for communication and 50 possible points for working conditions. In Figure 2, I have included a sample worksheet for assigning points to jobs.

25. The worksheet in Figure 2 could be used, for example, for all jobs within a particular "job family". Consider the Engineer I, Engineer II and Senior Engineer jobs mentioned previously. This worksheet could be filled out for any of those jobs and any other jobs in the "engineering" job family.

26. In Figure 3, the worksheet is filled out for a hypothetical Engineer II job which has degree 4 technical ability (worth 400 points), degree 2 leadership ability (worth 80 points), degree 3 responsibility (worth 90 points), degree 3 communications ability (worth 60 points) and degree 1 for working conditions (worth 10 points). The sum of these is 640 points. To show a concrete, related example, Pixar has an "Engineering Job Matrix" where it lists "knowledge," "job complexity," "supervision & collaboration" and "experience". They then list six levels of each.<sup>13</sup>

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<sup>13</sup> Engineering Job Matrix, Pixar, PIX00049042, exhibit 1305.

27. This differentiation process is then repeated for all jobs in the job family, and in all job families. In the hypothetical example in Figure 4, 530 points were assigned for the Engineer I job, 640 for the Engineer II job and 935 for the Senior Engineer job. In Figure 5, I have added two other job families (the Attorney job family and the Administrative job family) and three jobs to slightly increase the complexity of this example. The Attorney and Administrative job families could have had the same compensable factors, scales and weights as the Engineer job family, but that is not necessarily so in this hypothetical example.

28. Note that Figure 5 shows a relative ranking (or number of job evaluation points) for many different jobs. This is done entirely internally to the organization. No external data was used and no information on compensation of any kind was used in creating this.

29. A next step in a formal pay system is to match the set internal structure to external market data. This is something that defendants in this case have done for many years. Finding the right market data and the appropriate survey is described in the literature, including Cardinal and Florin (2012). Benchmark jobs are important since they are jobs that will ultimately be used to match the internal structure that has been identified (using all or many of the features discussed above) with the external market. Benchmark jobs are typically jobs that are relatively well-known and are common so that information can be collected about them internally and externally. However, even in the absence of perfect benchmark jobs, formal pay systems can operate.

30. Internal comparisons among workers are clearly important to workers and to organizations. This is the case both when organizations are organizing their structures and when making individual pay decisions. Organizations are also concerned with individual pay

comparisons, pay and equity and internal equity as confirmed in this case at each defendant organization, documented below.

31. Internal comparisons are also studied by academics from different disciplines. These include a set of studies on fairness (Levine, 1993), and pay secrecy (Milkovich and Anderson, 1972, Lawler, 1967, Card, Mas, Moretti and Saez, 2012).

32. A next step in a formal pay system is to match the set internal structure to external market data. Finding the right market data and the appropriate survey is not a simple task. More information on that can be found in a variety of sources, including Cardinal and Florin (2012).

33. Suppose that we have five internal jobs in a particular job family and that they have different levels of job evaluation points assigned to them. Call the five jobs Associate 1, Associate 2, Associate 3, Associate 4, and Associate 5. Further assume these five jobs have been assigned the following job evaluation points internally: 185, 200, 335, 400 and 460, respectively.

34. Further assume that the external data include information from a set of employers on each of the five jobs: Associate 1 – Associate 5. In this case (as in most cases) not all external organizations that have provided information to the survey consultant are paying each of the jobs equally. There is dispersion of compensation for each job. Figure 6 is an example that illustrates how this would look in practice. Note that the external firms all pay jobs in the Associate 2 position quite similarly, while there is a great deal of dispersion in how external competitors pay the Associate 4 and 5 jobs.<sup>14</sup>

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<sup>14</sup> Note, for example, the testimony of Intuit's Senior Vice President, Chief of Human Resources, Sherry Whiteley: [REDACTED] Deposition of Ms. Sherry Whiteley, March 14, 2013, page 97.

35. After the external market data are overlaid on the internal structure, a “market pay line” can be created. This can be done in a number of ways. One way, and the one I use in this example, is to create the “line of best fit” as I have done in Figure 6. In this case, the line is simply the “ordinary least squares regression line”. It is the line that minimizes the sum of the squared distances from each point and the line. This shows how the company, given its strategy, compensable factors, scales, weights, etc., pays, given internal and external market forces. Individual companies can always pay more or less, depending on their circumstances and interests. The ordinary least squares regression line<sup>15</sup> that comes from Figure 6 is  $-39,651.77 + 556.93 \times (\text{Job Evaluation Points})$ .

36. The market pay line is effectively showing, given the external market, how this company will pay at a point for a given job. Take, for example, the Associate 2 job in Figure 6. That job was assigned 200 job evaluation points. So to find the level of pay for an Associate 2 in the firm, after taking into account the internal structure and the external market data, one would pay  $\$71,734.43 = -39,651.77 + 556.93 \times (200)$ . The typical payment for the other jobs can be found similarly. A useful feature of this system is that jobs that are not included as benchmark jobs, jobs that are unique to the firm, or jobs that are created after the system is set up can also be priced using the equation. Say, for example, a job unique to the firm is developed and the company goes through the job evaluation and job analysis process and finds it is worth 300 job evaluation points. Even though there is no external market data on that job, a price can be created for it. It is  $-39,651.77 + 556.93 \times (300) = \$127,427.53$ .<sup>16</sup>

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<sup>15</sup> See page 80 in Hallock (2012).

<sup>16</sup> Note the explicit reference to a “Pay Line” in powerpoint on pay design, LUCAS 00188717, exhibit 715.10 and reference at Intel to “pay lines” in powerpoint called FY11 Preliminary Pay lines development update, May 5, 2010, 76582DOC000004\_000004, exhibit 399.4. See also references to “pay line” in 2008 Focal Development Process Overview, 76582DOC000348, page 4 (Intel).

37. Even in a formal pay structure, it is likely that not all people doing the same job within a firm are all paid the same salary. There are a wide variety of reasons for this. This is why, in a final stage, firms create bands and zones or grades and ranges or other systems to essentially put “boxes” around each type of job.<sup>17</sup> A clear example of this is the system for some Technical Jobs at Google in 2004.<sup>18</sup>

38. Figure 7 displays the information as of January 13, 2004 for Google Technical workers in job grades 1 – 9.<sup>19</sup> The figure has features that are consistent with models taught in compensation textbooks such as Milkovich, Newman and Gerhart (2011),<sup>20</sup> [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>21</sup>

39. Many organizations use various versions of what I have outlined in this section.

40. So far I have been focused on salaries. Wage and salary income is an important large part of labor compensation, as I will show below. But there are other components in total compensation, including bonuses, stock, stock options and other pay.

41. There is evidence that total compensation is correlated with salary. For example,

[REDACTED]

[REDACTED]

[REDACTED]

<sup>17</sup> See Milkovich, Newman and Gerhart (2011), page 265.

<sup>18</sup> See spreadsheet GOOG-HIGH-TECH-00221513.xlsx, tab “Employee Data”.

<sup>19</sup> Created from data in spreadsheet GOOG-HIGH-TECH-00221513.xlsx, tab “Employee Data”.

<sup>20</sup> See, for example, page 265 of Milkovich, Newman and Gerhart (2011) in Exhibit 8.17.

<sup>21</sup> Note, however, the horizontal axis for each job grade has some width so it is a “box” with a top and a bottom. But it can be characterized as a vertical line with no width, as in many subsequent figures.

██████████.<sup>22</sup> Elsewhere I will show the higher the job level the higher the salary in multiple organizations. Figure 8 is one example of a link between salary and equity.

42. An additional example of the link comes from an Apple Spreadsheet.<sup>23</sup> In this spreadsheet, ██████████. With respect to this sheet, Apple Senior Director of Compensation Steve Burmeister was asked, "... ██████████

██████████".<sup>24</sup> In Figure 9, I plot information from this sheet<sup>25</sup> and use only three columns of the data: ██████████

██████████. In Figure 9, I have plotted three panels. In the first, it is clear that

██████████. To create the panel in the top right of the figure, I first calculated a new variable which is the "nonbase" cash which I defined as (total cash) minus base. The top right panel plots this ratio against total cash compensation. Clearly a

██████████. In the bottom left panel, I plot the bonus percentage against the base salary for ██████████

43. I should note that there is substantial evidence in general, that stock (stock, stock options etc.) as a fraction of total compensation is correlated with job level and salary.<sup>26</sup>

44. There can be important credential effects to certain phenomena in labor markets, such as being associated with a college degree or being associated with well-known

<sup>22</sup> Powerpoint, Apple Inc., Compensation Committee, Apple, August 5, 2009, 231APPLE10067, exhibit 1854.5.

<sup>23</sup> Excel spreadsheet, Apple Computer, Inc., 2006 Compensation Analysis, APPLE 231APPLE098912, exhibit 1858.2.

<sup>24</sup> Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, page 112.

<sup>25</sup> Excel spreadsheet, Apple Computer, Inc., 2006 Compensation Analysis, APPLE 231APPLE098912, exhibit 1858.2.

<sup>26</sup> See, for example, Hallock (2012), page 92, for an example of the link between CEO cash compensation and CEO total compensation (including equity).



organizations. There is a large literature in economics on the economic returns to education (e.g. Card, 1999, 2001). There is also a literature on estimating the difference between productivity and the signaling effect of education on earnings (e.g., Spence, 1973, Hungerford and Solon, 1987 and Weiss, 1995). For example, do those with high levels of education have higher earnings because they learned more in school and are, therefore, more productive workers, or is the credential of the educational institution a signal to employers of their high ability or work ethic? Just as there could be signaling and productivity effects of education on earnings, there too could be productivity and signaling effects of the employer brand on earnings and future earnings. For example, working for a high-profile or well-known employer, including any of the seven defendants, could have positive benefits to an employee including monetary and non-monetary compensation in the future.

#### **V. The Defendants Had Formalized Pay Systems**

45. There is evidence in the testimony and documents I reviewed in this case that the defendants each had formalized or sophisticated human resource (HR) or compensation systems of one type or another. The systems are may not contain all features of the example I outlined above but they are certainly formalized compensation systems, as evidenced, for example, by their use of jobs, job families/grades, salaries or market ranges, and benchmark data.

46. **Adobe:** There is evidence that Adobe had formalized compensation systems. Included among the evidence that Adobe had formal structures is data Adobe produced to plaintiffs.<sup>27</sup> That information shows that Adobe had many job families, many grades within job

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<sup>27</sup> See spreadsheet "Employee Type Count by Employer".

families and many job titles within grades. Additional data include a variety of compensation structure features including salary min, mid and max information.<sup>28</sup>

47. Additional evidence that Adobe had formalized pay systems is contained in the deposition of Ms. Donna Morris, Vice President of Global Human Resources until March 2007, when she became Senior Vice President of Global Human Resources. Ms. Morris noted with respect to salary ranges [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>29</sup>

48. Ms. Morris also testified, [REDACTED]

[REDACTED]<sup>30</sup>

49. Ms. Morris similarly affirms in her declaration, “The target [salary] midpoint has changed over the years and varied across job functions. For example, the 2005 target midpoint for various jobs in set forth in Exhibit 1 (ADOBE\_015864), which is a true and correct copy of Adobe’s 2005 Performance, Salary & Stock Focal. The maximum and minimum of the salary range was then calculated by applying a spread, which also varied over the years and across job levels. The spread varied between 50% and 70% for different job levels during the class period”.<sup>31</sup>

50. Additional evidence that Adobe had formalized compensation and HR systems comes from the deposition of Ms. Rosemary Arriada-Keiper, who served as Adobe’s Manager of

<sup>28</sup> Spreadsheet, “Adobe\_Salary Ranges” (2002-2006); “ADOBE\_DATA\_000043\_SalaryRanges\_FY2008” (2008); “ADOBE\_DATA\_000044\_SalaryRanges\_FY2009” (2009); “ADOBE\_DATA\_000045\_SalaryRanges\_FY2010” (2010).

<sup>29</sup> Deposition of Ms. Donna Morris, Adobe, August 21, 2012, page 154.

<sup>30</sup> Deposition of Ms. Donna Morris, Adobe, August 21, 2012, page 155.

<sup>31</sup> Declaration of Ms. Donna Morris of Adobe, September 13, 2011, exhibit 416.7.

Global Compensation, and was asked [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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51. As an example of the structure at Adobe, Ms. Arriada-Keiper mentioned her own career progression in the company. She said “So no, it was – analyst, senior analyst, program manager, career level manager, senior level manager, director. So just moving up in levels right? We have lots of levels at Adobe”.<sup>33</sup>

52. Additional evidence that Adobe had formalized compensation and HR systems was in reference to the “salary planning tool”. Ms. Arriada Keiper was asked “...can you tell me how the salary planning tool has worked?”<sup>34</sup> She replied, “Yeah. So essentially the salary planning tool is populated with employee information for a particular manager, so the employees on their team. You have the ability to kind of look at their current compensation. It shows them what the range is for the current role that they’re in ... The tool also has the ability to provide kind of the guidelines that we recommend in terms of how managers might want to think about their specific allocated budget”.<sup>35</sup>

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<sup>32</sup> Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 24.

<sup>33</sup> Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 31.

<sup>34</sup> Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 82.

<sup>35</sup> Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, pages 82-3.

53. Additional evidence that Adobe had formalized HR and compensation systems is from the deposition of Mr. Jeffrey Vijungco, Adobe's Director of Talent Acquisition, who was asked, "Well, was – in determining base compensation, were the – were ranges of base compensation established for particular job levels of job titles?" He answered, "There is, you know, levels and ranges for every single job at Adobe".<sup>36</sup>

54. Additional evidence of formalized systems at Adobe is from the deposition of Mr. Bruce Chizen, Adobe's President and CEO from 2000 to 2007, who noted, "For every position, we would have a salary range. So depending on a person's individual experience, their role and responsibility, the job would pay externally between X and Y according to the data we had, and we said philosophically we wanted to pay within the X percent and Y percent of that range". He went on to say, "And I wanted to make sure we were staying within that relative philosophy. There were always exceptions. Acquisitions, people who had incredible talent and were really providing a bigger role than their title did, so there were always exceptions. But for the most part, I took responsibility philosophically to comply with what I believed to be the right thing to do".<sup>37</sup>

55. Adobe also used external market data. Mr. Chizen testified that salary ranges were informed by market data. "We – we relied heavily on external data. So it – I don't – I don't know which ones, but Radford would be an example of that, the Radford data".<sup>38</sup>

56. There is also evidence that Adobe focused on particular markets for benchmarks. For example, Mr. Chizen was asked if there were particular markets that Adobe used as benchmarks or guidelines for setting salary ranges. He responded affirmatively, explaining, "I

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<sup>36</sup> Deposition of Mr. Jeffrey Vijungco, Adobe, October 5, 2012, page 29.

<sup>37</sup> Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, page 96.

<sup>38</sup> Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, page 97.

don't know specifics, but they tended to be software, high-tech, those that were geographically similar to wherever the position existed".<sup>39</sup>

57. Adobe also used market surveys, gathered by Adobe's "Total Rewards organization".<sup>40</sup>

58. Additional evidence that Adobe had formalized HR and compensation systems comes from evidence of their systems of "ranking" employees as "High Performer," "Solid Contributor," and "Low Performer".<sup>41</sup>

59. Adobe also had a salary range website for managers. Ms. Arriada-Keiper testified, "So a salary range website is a tool that we have available to managers whereby they can look at a salary range for an associate job".<sup>42</sup>

60. **Apple:** There is evidence that Apple had formalized compensation systems.<sup>43</sup> Additional data include a variety of compensation structure features including [REDACTED]  
[REDACTED].<sup>44</sup>

61. Additional evidence that Apple had formalized HR and compensation systems comes from a document that lists [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] in Figure 10.<sup>45</sup> These are shown in the form of

<sup>39</sup> Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, page 98.

<sup>40</sup> Deposition of Mr. Jeffrey Vijungco, Adobe, October 5, 2012, page 31.

<sup>41</sup> Powerpoint, Adobe, Q1 Workforce Metrics, As of 4 March 2005, Adobe, ADOBE\_000622, exhibit 210.12.

<sup>42</sup> Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, pages 159-60.

<sup>43</sup> See spreadsheet "Employee Type Count by Employer". "FY07 U.S. Base Pay Salary Structures," 231APPLE007258-59 (2007); Spreadsheet, "Apple Titles and Grades" and Spreadsheet, "Apple Titles and Grades by Year".

<sup>44</sup> See, for example, Base Salary Structures, Apple, Effective July 15, 2008, 231APPLE009282, exhibit 268.5.

<sup>45</sup> Base Salary Structures, Apple, Effective July 15, 2008, 231APPLE009282, exhibit 268.5.

graphs in Figure 11.

62. Additional evidence that Apple had formalized compensation and HR systems comes from the deposition of Mr. Mark Bentley, Apple’s Senior Director of Recruiting, who was asked, “From time to time, did Apple raise the compensation for a particular job category or job level? He replied “I believe that would be taken – I believe if and when that was done, it was done on an annual basis during compensation planning”.<sup>47</sup>

63. Mr. Bentley also described the merit process at Apple which is evidence of a formal HR and compensation system. He said, “The merit process is, I think, similar to many companies. [REDACTED]

64. Additional evidence of a formal salary and HR system at Apple is from Senior Director of Compensation Steven Burmeister's deposition. He testified, "My group is

<sup>46</sup> Base Salary Structures, Apple, Effective July 15, 2008, 231APPLE009282, exhibit 268.5.

<sup>47</sup> Deposition of Mr. Mark Bentley, Apple, August 23, 2012, page 252.

<sup>48</sup> Deposition of Mr. Mark Bentley, Apple, August 23, 2012, page 262-3.

responsible for the job structure, the salary range structure, bonus plan design, and equity plan design and administration for Apple.<sup>49</sup>

65. Mr. Burmeister also noted, “compensation budgets are three main compensation components: base salary, bonus, and stock. And we set the overall compensation budget for these three compensation elements and then provide them to the line of businesses, which then allocate them as appropriate to each of their employees based on performance and contribution”.<sup>50</sup>

66. **Google:** There is evidence that Google had formalized compensation systems. That information includes the fact that Google has job families, levels, and grades.<sup>51</sup> For example, note again Figure 7 which was created from a Google spreadsheet and additional data include a variety of compensation structure features [REDACTED].<sup>52</sup> This spreadsheet documented nine job grades. For each job grade [REDACTED].

Google Director of Compensation Frank Wagner testified that he could locate the target salary for jobs at Google through an internal company website. He was asked, “And if you wanted to identify what the target salary would be for a certain job within a certain grade, could you go

<sup>49</sup> Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, page 18.

<sup>50</sup> Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, page 50.

<sup>51</sup> Spreadsheet: “Google Census Data, 9-Grade Structure,” GOOG-HIGH-TECH-00625160 and GOOG-HIGH-TECH-00625200 (2003); Spreadsheet: “Google 2004 Salary Ranges,” Exhibit 1600; Spreadsheet: “2005 Global Salary Ranges,” GOOG-HIGH-TECH-00625148; Spreadsheet: “Salary Guidelines,” GOOG-HIGH-TECH-00625147 (2006); and Spreadsheet: Market Reference Points, GOOG-HIGH-TECH-00182929 (2007-2012). Regarding the final spreadsheet covering the years 2007 through 2012, Mr. Frank Wagner verified that [REDACTED] Deposition of Mr. Frank Wagner, Google, March 7, 2013, pages 56-59.

<sup>52</sup> See spreadsheet GOOG-HIGH-TECH-00221513.xlsx, tab “Employee Data.”

online or go to some place in your office and pull up what that was for that job family and that grade?”<sup>53</sup> He answered “Could I do it?...Yes”.<sup>54</sup>

67. Additional evidence that Google had formalized structures is in data Google produced to plaintiffs.<sup>55</sup> [REDACTED]

[REDACTED].

68. Google former Senior Vice President of People Operations (HR) Shona Brown also confirmed [REDACTED]

[REDACTED]. She was asked “[REDACTED]

[REDACTED] she replied [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].<sup>56</sup>

69. Google former Senior Vice President of Engineering Alan Eustace confirmed Google’s formalized pay systems in his deposition, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>57</sup>

70. **Intel:** There is evidence that Intel had formalized compensation systems. Included among this is evidence that Intel had formal structures in data provided by Intel to

<sup>53</sup> Deposition of Mr. Frank Wagner, March 7, 2013, page 57.

<sup>54</sup> Deposition of Mr. Frank Wagner, March 7, 2013, page 58.

<sup>55</sup> See spreadsheet “Employee Type Count by Employer”.

<sup>56</sup> Deposition of Dr. Shona Brown, January 30, 2013, page 253.

<sup>57</sup> Deposition of Mr. Alan Eustace, February 2013, page 132.



██████████<sup>58</sup> That information shows that Intel had many job families, many grades within job families and many job titles within grades. Additional data include a variety of compensation structure features including salary min, mid and max information.<sup>59</sup>

71. Additional evidence that Intel had formalized pay systems comes from a document called “Compensation 201 Instructor Guide” which includes terms such as [REDACTED]

[REDACTED]

60

72. Additional evidence that Intel had formalized HR and compensation systems comes from a document called “Intel Base Pay Comparison Report” which includes mentions of [REDACTED]

[REDACTED]<sup>61</sup>

73. Additional evidence that Intel had formalized pay systems comes from the deposition of Ms. Patricia Murray, Intel's former Vice President of Human Resources (1996-2012). She was asked, "Okay. Can you describe for me the general annual process that was used to set compensation?"<sup>62</sup> [REDACTED]

<sup>58</sup> See spreadsheet “Employee Type Count by Employer”.

<sup>59</sup> Spreadsheet, “SAL\_ADMIN\_PLAN,” 76586DOC001450 (2004 – 2011); Spreadsheet, “Intel Job Titles and Grades”.

<sup>60</sup> Compensation 201 Instructor Guide, Intel, 76583DOC007693, exhibit 2030, page 65.

<sup>61</sup> Powerpoint, Intel Base Pay Comparison Report, Support Overview, WW04 2011, 765825DOC001211, exhibit 400, page 31.

<sup>62</sup> Deposition of Ms. Patricia Murray, Intel, February 14, 2013, page 15.

[REDACTED]

[REDACTED]<sup>63</sup>

74. There is additional evidence that Intel had formalized HR systems. Intel Senior Vice President of Human Resources Deborah Conrad testified, “Yes, we have a compensation structure”. She explained, [REDACTED]

[REDACTED]

[REDACTED]<sup>64</sup>

75. Ms. Conrad noted that [REDACTED]

[REDACTED]

[REDACTED]<sup>65</sup>

76. Additional evidence that Intel had formalized compensation and HR systems includes reference to [REDACTED]<sup>66</sup>, reference to a list of [REDACTED]

[REDACTED]

[REDACTED]<sup>67</sup>, reference to four types of [REDACTED]

[REDACTED]<sup>68</sup> [REDACTED]<sup>69</sup>

77. Additional evidence that Intel had formalized pay systems comes from the deposition of Technology Development Manager Mr. Randall Goodwin who was asked, [REDACTED]

[REDACTED]

<sup>63</sup> Deposition of Ms. Patricia Murray, Intel, February 14, 2013, pages 15-16.

<sup>64</sup> Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, pages 23-4.

<sup>65</sup> Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, page 34.

<sup>66</sup> Powerpoint, FSM Pre-Focal Analysis 2007, Intel, January 2007, 76583DOC002007, exhibit 393.13.

<sup>67</sup> Powerpoint, FSM Pre-Focal Analysis 2007, Intel, January 2007, 76583DOC002007, exhibit 393.16.

<sup>68</sup> Powerpoint, FSM Pre-Focal Analysis 2007, Intel, January 2007, 76583DOC002007, exhibit 393.28.

<sup>69</sup> Powerpoint, FSM Pre-Focal Analysis 2007, Intel, January 2007, 76583DOC002007, exhibit 393.19.

[REDACTED]<sup>70</sup> He replied, [REDACTED]

[REDACTED]

[REDACTED]<sup>71</sup>

78. Additional evidence that Intel had formalized compensation and HR systems came from the deposition of Compensation and Benefits Specialist Daniel McKell. Mr. McKell was asked “Can you list all of the different ratings that Intel uses?” He replied [REDACTED]

[REDACTED]

[REDACTED]<sup>72</sup>

79. There is additional evidence that Intel has formalized systems. Mr. McKell was asked “What are the job ranges that Intel currently has?” He answered [REDACTED]

[REDACTED]. He was then asked [REDACTED] Shortly thereafter he was asked “can you give me an estimate” of the number of job grades? He replied

[REDACTED]<sup>73</sup>

80. [REDACTED]

[REDACTED]<sup>74</sup>

81. There is also evidence that Intel referred to job families in their structure. Mr. McKell noted, [REDACTED]

[REDACTED]<sup>75</sup>

82. Mr. McKell described internal benchmarking: [REDACTED]

[REDACTED]

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<sup>70</sup> Deposition of Mr. Randall Goodwin, Intel, March 15, 2013, page 51.

<sup>71</sup> Deposition of Mr. Randall Goodwin, Intel, March 15, 2013, page 52.

<sup>72</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 47.

<sup>73</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 49.

<sup>74</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 56.

<sup>75</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 73.

[REDACTED]  
[REDACTED]<sup>76</sup>

83. There is additional evidence of formalized pay and HR systems at Intel. Mr. McKell was asked “Since you have been involved in compensation, have you received from time to time reports “showing whether Intel’s job codes are being paid relative to the midpoint of the pay line?” He replied [REDACTED],<sup>77</sup> Mr. McKell also noted, [REDACTED]  
[REDACTED]

[REDACTED].<sup>78</sup> He was then asked, [REDACTED]

[REDACTED] He answered [REDACTED].<sup>79</sup>

84. Mr. McKell affirmed at his deposition the statement in his declaration<sup>80</sup> that Intel

[REDACTED]

[REDACTED]

[REDACTED].<sup>81</sup> Soon after Mr. McKell was asked, “Does Intel calculate a market rate for each of these job combinations?” He replied, [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]<sup>82</sup>

85. **Intuit:** There is evidence that Intuit had formalized compensation systems. Included among this is evidence such as salary low, mid and high information, job codes, and

<sup>76</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 87-8.

<sup>77</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 90.

<sup>78</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 91.

<sup>79</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 92.

<sup>80</sup> Declaration of Mr. Danny McKell, Intel, September 13, 2011.

<sup>81</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 154.

<sup>82</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 155.

percentiles.<sup>83</sup> That information shows that Intuit had many job families and many job titles within job families and other features of formal systems.

86. Additional evidence that Intuit had formalized HR and compensation systems is contained on one of the documents that notes a list of codes including [REDACTED]

[REDACTED]

[REDACTED]

<sup>84</sup> When Intuit Director of Talent Acquisition Chris Galy was asked about these codes, [REDACTED]

[REDACTED]<sup>85</sup>

87. Intuit also indicated other evidence of formal pay structures. Vice President of Human Resources Mason Stubblefield described his responsibility regarding base compensation work. “So I’d say it’s fairly broad from a base compensation perspective. It’s something we think of as job architecture. So the job codes that we use, the job titles that we use, the structure behind that job system that we have really around job codes, job families. And so helping structure that, set that up. The connections from that into the market data and how we provide market reference data to the organization to assist with making compensation decisions; the extension of that into the annual talent and pay process, the merit decisions, performance decisions and managing that process across the company”.<sup>86</sup> [REDACTED]

[REDACTED]

[REDACTED].<sup>87</sup> In addition, he noted, [REDACTED]

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<sup>83</sup> Spreadsheet: “Market Data,” INTUIT\_031024 (2009), INTUIT\_048148\_2005.

<sup>84</sup> Powerpoint, FY ’09 New Hire Equity Guidelines, Intuit, INTUIT\_039756, exhibit 2140.4.

<sup>85</sup> Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 193.

<sup>86</sup> Deposition of Mr. Mason Stubblefield, Intuit, March 29, 2013, pages 20-1.

<sup>87</sup> Deposition of Mr. Mason Stubblefield, Intuit, March 29, 2013, page 25.

[REDACTED]

[REDACTED]<sup>88</sup>

88. Intuit also has formal bands by which jobs are categorized. These include five groups: [REDACTED]

[REDACTED]<sup>89</sup> Related to that, Mr. Stubblefield noted, “Intuit uses the idea of development bands to help from a learning and development perspective. There are five bands inside the company ... each job that we have fits into a band, and so this is just trying to display how, as you move up in the organization or move through different levels of jobs, the – that does move through our band structure, and also kind of the expectation of the scope ...”.<sup>90</sup>

89. **Lucasfilm:** There is evidence that Lucasfilm had formalized compensation systems. Included among this is data provided by Lucasfilm to plaintiffs.<sup>91</sup> That information shows that Lucasfilm had a variety of compensation structure features including salary min, mid and max information, grades and job titles.

90. Former Senior Director of Human Resources Ms. Sharon Coker testified that Lucasfilm had a salary structure.<sup>92</sup> “We had – yes, we had identified levels of positions within our salary structure all the way through nonexempt up to the executive level”. She confirmed they were maintained in written form, stating, “They were maintained, yes, in a database”.<sup>93</sup>

91. Ms. Coker also confirmed Lucasfilm’s use of noted job families: “... So production family can start with a production assistant, which is the entry-level position, and

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<sup>88</sup> Deposition of Mr. Mason Stubblefield, Intuit, March 29, 2013, page 70.

<sup>89</sup> Powerpoint, Leveraging Compensation and Performance, Intuit, January 7, 2005, exhibit 1761.19.

<sup>90</sup> Deposition of Mr. Mason Stubblefield, Intuit, March 29, 2013, page 87.

<sup>91</sup> Spreadsheet LUCAS00221117 (2007 – 2012).

<sup>92</sup> Deposition of Ms. Sharon Coker, Lucasfilm, November 1, 2012, page 242.

<sup>93</sup> Deposition of Ms. Sharon Coker, Lucasfilm, November 1, 2012, page 242.

work all the way up to an executive producer. And that would be what I would call a job family. So it's the production job family".<sup>94</sup>

92. She testified that salary ranges were related to: "...It was almost like an intersection, if you picture the grid. So within a family of jobs, like if you were to look at like technical positions or if you were to look at the production family, I'll stay with that for a moment, there's a hierarchy, if you will, of complexity of roles within a family, and that might be the horizontal part of the grid. The vertical part of the grid would be, you know, how do you level those positions with – across the board, to compare them to people in different job families".<sup>95</sup>

93. There is additional evidence that Lucasfilm had formalized HR and compensation systems. For example, an internal presentation noted "job families," "levels or bands," "job title structure," and "slot incumbents into the framework".<sup>96</sup>

94. Additional evidence of formalized compensation or HR systems include the document reference: "Benchmarking: Lucasfilm will benchmark total cash compensation at [REDACTED] [REDACTED] for most positions, using compensation surveys that are relevant to the specific job or job family. Positions that are defined as highly competitive and/or highly critical to achieving business objectives such as all studio and technical positions are to be benchmarked at [REDACTED] [REDACTED] [REDACTED]".<sup>97</sup>

95. Additional evidence for formalized systems for compensation and HR at Lucasfilm include a series of competencies and scales. For example, for the function "ADMINISTRATION/PRODUCTION/DIG TECHNOLOGIES" the following levels are listed,

<sup>94</sup> Deposition of Ms. Sharon Coker, Lucasfilm, November 1, 2012, page 249.

<sup>95</sup> Deposition of Ms. Sharon Coker, Lucasfilm, November 1, 2012, page 250-1.

<sup>96</sup> Powerpoint, Global Compensation Project, Lucasfilm Ltd., September 22, 2005, exhibit 944.9.

<sup>97</sup> Powerpoint, PAY FOR PERFORMANCE: 2009 Salary Budget Recommendation, Executive Review, January 21, 2009, Lucasfilm, LUCAS00189288, exhibit 945.13.

“LEVEL I – ENTRY,” “LEVEL II – INTERMEDIATE,” “LEVEL III – SENIOR,” and “LEVEL IV SPECIALIST,” and four sets of competencies are listed “scope/complexity,” “knowledge & skills,” and “Supervision/ Discretion”.<sup>98</sup>

96. There is additional evidence that Lucasfilm had formalized HR and compensation systems. For example, Senior Manager, Compensation Michelle Maupin was asked in her deposition, “Can you tell me the approximate salary range for grade [REDACTED]?” She answered, “I believe the midpoint, which is what is around [REDACTED]. The low would probably be around [REDACTED] and the high would probably be around [REDACTED]”.<sup>99</sup>

97. A Lucasfilm PowerPoint presentation has other reference to formalized systems, noting “job grading,” “job match to salary survey data,” and “internal equity/factors”.<sup>100</sup>

98. **Pixar:** There is evidence that Pixar had formalized compensation systems. Included among this is data provided by Pixar to plaintiffs.<sup>101</sup> That information shows that Pixar had many job titles. Additionally Pixar uses compensation data in percentiles (e.g. 10<sup>th</sup>, 50<sup>th</sup>, 90<sup>th</sup>).<sup>102</sup>

99. For example, Vice President of Human Resources and Administration Lori McAdams noted in her deposition, “We establish salary ranges for each of our positions, and an employee is offered or paid usually within that salary range”. She confirmed, “We participate in salary surveys in the industry and – and in – in various fields, and use that information to determine the appropriate salary range”.<sup>103</sup>

<sup>98</sup> LUCAS00188750-LUCAS00188753, exhibit 959.43-959.46.

<sup>99</sup> Deposition of Ms. Michelle Maupin, February 12, 2013, page 39.

<sup>100</sup> Powerpoint on pay design, LUCAS 00188763, exhibit 715.56.

<sup>101</sup> See spreadsheet “Employee Type Count by Employer”.

<sup>102</sup> See, for example, Survey collection forms: PIX00088222 (2009); Market survey results: PIX00056267 (2009); Matching employees to survey results: PIX00088115 (2009).

<sup>103</sup> Deposition of Ms. Lori McAdams, August 2, 2012, page 29.



100. Ms. McAdams also noted the structure of the size of the ranges at Pixar: [REDACTED]

[REDACTED]

[REDACTED].<sup>104</sup>

101. Ms. McAdams also noted information about adjustments at Pixar: “Well, the salary range adjustments is something that’s done by human resources so that we have ranges for all of our established positions. And then the managers are provided any updated salary range information so that when they are distributing their salary increase pool, they know if someone is below – you know, they know where their people are in those salary ranges and can provide, you know – can spend their pool accordingly”.<sup>105</sup>

102. Ms. McAdams also was asked about Pixar’s use of salary surveys. “The Croner Survey is an industry specific survey that surveys positions in the animation and visual effects industry”.<sup>106</sup>

103. While Croner collects data for a broader collection of companies, Pixar sometimes request subsets of the data. When asked about the minimum number of companies that can be provided by the Croner Survey, Ms. McAdams replied “I think it’s five”.<sup>107</sup>

104. Information from the Croner Survey, used by Pixar (and other organizations) notes “hierarchy,” “job families,” and “positions,” all terms used in formalized compensation systems.<sup>108</sup>

105. Additional evidence of formal pay systems at Pixar are from Manager of Human Resources Stephanie Sheehy’s deposition. She was asked, “How are base salaries determined for Pixar employees?” She replied, “We use survey data for the most part”. She was then asked

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<sup>104</sup> Deposition of Ms. Lori McAdams, August 2, 2012, page 32.

<sup>105</sup> Deposition of Ms. Lori McAdams, August 2, 2012, pages 40-41.

<sup>106</sup> Deposition of Ms. Lori McAdams, August 2, 2012, page 60.

<sup>107</sup> Deposition of Ms. Lori McAdams, August 2, 2012, page 61.

<sup>108</sup> 2009 Croner Animation and Visual Effects Survey, January 8, 2009, PIX00001263, exhibit 119.

“What do you do with the survey data?” She replied “We use it as a guideline to help us determine the minimum salary/maximum salary for a job”.<sup>109</sup>

106. Ms. Sheehy confirmed Pixar used salary ranges at Pixar”.<sup>110</sup> Later she was asked about job families and replied, “Job families are also called job groups, which I referred to earlier...They’re a grouping of employees that sit together in our structure”.<sup>111</sup>

107. Ms. Sheehy also testified that Pixar used both Croner and Radford market survey data. When asked about “the steps that you follow to use that data and make the salary ranges”, Ms. Sheehy answered “Let me think, is there a big difference between them? No, we use them pretty much the same, both Croner and Radford. So we have met with each manager and gotten a match for all the matches that are matchable. The employees that are matchable to a job in one of the two surveys. And we submit our data at certain points during the year. And then when we get our data back, we compare where the employee match range was that – [REDACTED] [REDACTED] [REDACTED], and where the employee presently is in their salary, what their current salary is, and we see where they land inside that range”.<sup>112</sup>

108. Ms. Sheehy also noted job groups at Pixar.<sup>113</sup> This is another part of the formal pay structure.

109. Pixar, like other defendant organizations, considered salary increase budgets each year in considering changes to its pay systems. Pixar was also interested in what was happening at other companies, particularly Lucasfilm. For example, Ms. McAdams sent an email to staff from Lucasfilm, among others: “Quick questions from me, for those of you who can share this

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<sup>109</sup> Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 49.

<sup>110</sup> Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 50.

<sup>111</sup> Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 78.

<sup>112</sup> Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 88.

<sup>113</sup> Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 136.

info. What is your salary increase budget for FY '07? Ours is 4%, but we may manage it closer to 3% on average. Are you doing anything close, more, or less?"<sup>114</sup>

## VI. Issues of Internal Equity

110. In the best-known text in compensation, by Milkovich, Newman and Gerhart (2014), *Compensation*, notes in the glossary under "equity theory," "A theory proposing that in any exchange relationship (such as employment) the equality of the outcome/input ratios between a person and a comparison other (a standard or relevant person/group) will determine fairness or equity. If the ratios diverge from each other, the person will experience reactions of unfairness and inequity".<sup>115</sup> Issues of equity are clearly important not only in setting up the original structure of a compensation system but also when managing it.

111. There is substantial evidence that issues of internal equity and pay fairness were important to defendant firms.

112. **Adobe:** There is evidence that Adobe followed principles of internal equity. For example, one document notes a section on the issue of a "Counter Offer". It states "[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].<sup>116</sup> The capitalized "ALWAYS" is in the original. [REDACTED]

[REDACTED]

[REDACTED]

<sup>114</sup> Email from Lori McAdams, Pixar, November 17, 2006, LUCAS00184664, exhibit 122.

<sup>115</sup> Milkovich, Newman and Gerhart (2014), page 680.

<sup>116</sup> Powerpoint, Retention/Transition Guidelines, Adobe, June 2008, ADOBE\_050724, exhibit 216.5.

113. An additional mention of internal equity at Adobe is in the deposition of Mr. Digby Horner, Adobe's Senior Vice President of Engineering. In reference to an email exchange he had with colleagues that discussed the possibility of raising the pay of an employee "off cycle," a list of employees in similar positions at Adobe was included in the message.<sup>117</sup> Mr. Horner was asked, "Is it fair to say that you want to consider how [REDACTED] peers are being compensated to make sure that the compensation he receives is fair in comparison to them?" He replied, "Yeah. What I would – what I would say here is that, you know, the primary thing I look at is – so that – that's a term that we use internally, which is internal equity."<sup>118</sup>

114. Similarly, in 2008, Senior Vice President of Global Human Resources Donna Morris sent a message with the subject "final review of salaries," indicating, "I have just finished the full review of all salary and stock, and would like to recommend some changes relative to your organization. [REDACTED]

[REDACTED]

[REDACTED],<sup>119</sup>

115. Ms. Morris also references internal equity in a series of emails to Adobe's CEO Shantanu Narayen. In the first, Ms. Morris wrote concerning a job candidate, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>120</sup>

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<sup>117</sup> Email from Ms. Jocelyn Vosburgh, Adobe, October 25, 2010, ADOBE\_011976-7, exhibit 1250.1-2.

<sup>118</sup> Deposition of Mr. Digby Horner, Adobe, March 1, 2013, page 200.

<sup>119</sup> Email of Ms. Donna Morris, Adobe, January 18, 2008, ADOBE\_009425, exhibit, 2501.1.

<sup>120</sup> Email from Ms. Donna Morris, Adobe, March 4, 2007, ADOBE\_005661, exhibit 1158.

116. In a different email, Ms. Morris wrote Mr. Narayan, “Shantanu – Please find attached proposed promotional compensation packages for [REDACTED] and [REDACTED] taking into account market and internal equity ....”<sup>121</sup>

117. In another exchange between Ms. Morris and Adobe’s CEO Mr. Narayan, she wrote about the compensation for a potential new hire and then listed names and initials of four people and some details of their compensation, including base and total cash compensation, under the caption “internal equity.”<sup>122</sup>

118. At his deposition, Mr. Narayan was asked about this third email exchange and what he meant when he emailed Donna Morris, “Does that cause any internal inequities?”<sup>123</sup> He testified, “I think it would have related to, from a scope point of view and a performance point of view, are you looking at that?”<sup>124</sup>

119. Ms. Rosemary Arriada-Keiper also confirmed that internal equity was a principle used at Adobe. “We use internal equity primarily in the capacity of looking at, again, typically new hires ...”.<sup>125</sup> She explained, “So myself, as an example, if I’m bringing in somebody from the outside and I’m thinking about what’s this offer that I want to make to this individual, I will generally look at my team and see where they’re positioned, you know, and kind of make a judgment call there. Because I do know that these individuals are going to be working side by side, and you know, it can potentially have implications for me as a manager if they’re performing exactly the same way and they feel like there is not a perceived fairness in terms of their pay, right?” She further stated, “A conversation to have to explain to the individual why I made the decision that I did, right? And there may be reasons for why I do that, and I’m

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<sup>121</sup> Email from Ms. Donna Morris, Adobe, June 5, 2010, ADOBE\_019278, exhibit 1159.

<sup>122</sup> Email of Ms. Donna Morris, Adobe, June 13, 2011, ADOBE\_9652, exhibit 1160.

<sup>123</sup> Email of Mr. Shantanu Narayan, Adobe, June 14, 2011, ADOBE\_9652, exhibit 1160.

<sup>124</sup> Deposition of Mr. Shantanu Narayan, Adobe, February 28, 2013, page 319.

<sup>125</sup> Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 122.

perfectly comfortable with it. And in other instances, I may say you know what? It's not worth it to me. I don't want to create an issue where five people are going to be pissed off because this person, you know, makes more than them and haven't been here to prove themselves. So I have to rationalize that as a manager."<sup>126</sup>

120. **Apple:** There is evidence that Apple followed principles of internal equity. Mr. David Alvarez, Apple Recruiting Manager, testified that when making an offer to a new hire one of the factors to consider in compensation is internal equity. When asked, "What do you mean by 'internal equity'?"<sup>127</sup>, Mr. Alvarez responded "What the population of – let's say if a candidate's coming in at a certain level, we look at someone in that organization at that level to see what everybody's making. So who's the low, the average and the high. That's what internal equity is. There's a lot of calibration to it, so there's a lot of avenues that we take to come up with that recommendation".<sup>128</sup>

121. Former recruiter Darrin Baja testified that he was familiar with the term "internal equity" and that it was a term used in discussing compensation at Apple.<sup>129</sup>

122. Mr. Baja was asked "So, for example, if you were hiring somebody onto a team, and they were doing a job function that was similar to what the other people on the team were doing, you would look to what the other people on the team were making for comparative purposes in setting the salary of the new hire?" He replied "That is one thing we would do, yes."<sup>130</sup>

123. In an email message in response to a suggested level of compensation for a candidate, Mr. Rob York wrote [REDACTED]

<sup>126</sup> Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, pages 124-5.

<sup>127</sup> Deposition of Mr. David Alvarez, Apple, March 5, 2013, page 30.

<sup>128</sup> Deposition of Mr. David Alvarez, Apple, March 5, 2013, page 30.

<sup>129</sup> Deposition of Mr. Darrin Baja, Apple, March 1, 2013, page 43.

<sup>130</sup> Deposition of Mr. Darrin Baja, Apple, March 1, 2013, page 44.

[REDACTED]<sup>131</sup> Mr. David Alvarez was asked about this message: “So in setting salaries that would be components of offers for candidates Apple was interested in hiring, was what a candidates peer group was receiving an important consideration”? Mr. Alvarez responded “That’s what we call internal equity”.<sup>132</sup>

124. Internal equity is also discussed by Director of Executive Recruiting Mr. Richard Bechtel, although he noted that he uses “the term ‘internal parity’ just to stay away from the term ‘equity,’ which can also mean RSUs and options. But internal parity is – yeah, yes, it does come up”.<sup>133</sup> Mr. Bechtel was later asked “So would it create a problem from the standpoint of internal parity to offer a new hire more in compensation than is being paid to that new hire’s peers who have the same job function?”<sup>134</sup> Mr. Bechtel responded “Yeah. It’s – it’s something that – it’s something that we would definitely want to be aware of. We would want to be sensitive to it and we’d want to know why we were paying somebody more coming in than somebody who is, you know, their peer that’s performing at a good level. And there have been circumstances that we’ve done that, but there’s been business reasons for it”. He was then asked “Well, why would you want to be sensitive about that?” Mr. Bechtel responded “I – we – it – because people that are good employees at Apple, that are doing good work, that are well-respected, and that are performing at a high level, you know, we – we want to – we want to make sure we’re doing right by them”.<sup>135</sup>

125. There is other information at Apple that indicated that internal comparisons and equity mattered. Former recruiter Patrick Burke, was asked “So during your time, you hired or recruited engineers, correct?” He said “That’s all I did. Yes”. He was then asked, “Now, for

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<sup>131</sup> Email from Mr. Rob York, Apple, on December 17, 2010, 231APPLE039427, exhibit 1376.2.

<sup>132</sup> Deposition of Mr. David Alvarez, Apple, March 5, 2013, page 208.

<sup>133</sup> Deposition of Mr. Richard Bechtel, Apple, March 7, 2013, page 40.

<sup>134</sup> Deposition of Mr. Richard Bechtel, Apple, March 7, 2013, pages 43-4.

<sup>135</sup> Deposition of Mr. Richard Bechtel, Apple, March 7, 2013, page 44.

any particular engineering candidate, how was the salary range established for that potential candidate?” Mr. Burke replied “It wasn’t a salary range determined, it was what salary we were going to offer”.<sup>136</sup> He then went on to say “And how that was determined was mostly asking the hiring manager who they compared to in the team, looking at the candidate’s education, experience, and knowledge within that experience, and comparing that to different people on their team. And these were the biggest deciphering things. [REDACTED]

[REDACTED]. And that’s more what determined it. And then sometimes, depending on where – the number that we determined for a particular candidate, [REDACTED]

[REDACTED], and that’s where kind of sometimes HR would get involved to do it. But it was generally guided by other people on the team and how they compared to them”.<sup>137</sup>

126. Mr. Burke confirmed that it was important not to pay new people more than those already working at Apple.<sup>138</sup> “That was a determining factor, but it was, again, more about how they compared to those people. And so the hiring manager would usually not want to pay more than a person with similar or more experience at Apple. So we called it internal equity or fair compensation. And we would want to kind of keep it fair to the team on board. Just because this person was asking for more money than someone with similar experience on the team didn’t mean we just gave it to him. We would keep it fair to the people, and [REDACTED]

[REDACTED].<sup>139</sup>

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<sup>136</sup> Deposition of Mr. Patrick Burke, Apple, February 26, 2013, page 37.

<sup>137</sup> Deposition of Mr. Patrick Burke, Apple, February 26, 2013, pages 37-8.

<sup>138</sup> Deposition of Mr. Patrick Burke, Apple, February 26, 2013, pages 42-3.

<sup>139</sup> Deposition of Mr. Patrick Burke, Apple, February 26, 2013, page 43.



127. Apple's Senior Director of Compensation Mr. Steve Burmeister was asked "Have you heard the term 'internal equity'?" He replied "I've – in a compensation speak language, we use the term 'internal equity'". He elaborated "Internal equity means, to me, that what you're looking at, if you're looking at compensation, that it's fair based on the individual's contribution relative to the other employees in your group, or across your organization, whatever your scope of management is". When asked "Is there an internal equity component to determining starting salaries at Apple?"<sup>140</sup> Mr. Burmeister replied "It – internal equity plays into a few, if not all, of these bullets for managers to consider when looking at a candidate to determine a new starting salary".<sup>141</sup>

128. There are two other issues related to this issue in an Apple document. A document notes [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] On the same page of that document, it is noted [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>142</sup>

129. **Google:** There is evidence that Google followed principles of internal equity. For example, a PowerPoint presentation about determining base salary shows [REDACTED]

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<sup>140</sup> Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, page 63.

<sup>141</sup> Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, pages 63-4.

<sup>142</sup> Powerpoint, Compensation Framework, Insuring Global Consistency, Apply, 231APPLE105345, exhibit 1856.4.

[REDACTED]  
[REDACTED].<sup>143</sup>

130. Another Google document is related to equity issues. Figure 12 is a reproduction of a Google document.<sup>144</sup> On the vertical axis is the employee performance rating. The document indicates that the ratings go from [REDACTED]. On the horizontal axis the “pre-adjustment position” is listed. [REDACTED]

[REDACTED].<sup>145</sup>

131. [REDACTED]  
[REDACTED]. For example, consider someone with the very-highest performance rating [REDACTED]). If that person has a pre-adjustment position of [REDACTED] his or her merit increase will be [REDACTED] but if that person has a pre-adjustment position of [REDACTED] his or her merit increase will be only [REDACTED]. Also consider someone who is rated as an average performer [REDACTED]. If that person is at a pre-adjustment position of [REDACTED] his or her merit increase will be [REDACTED] but if that person has a pre-adjustment position of [REDACTED], his or her merit increase will be [REDACTED].<sup>146</sup> This system essentially is consistent with bringing salaries in a group back together over time.

132. The preceding example is a structured situation that shows that issues of equity need not immediately lead to compensation changes. However, equity can have serious and large implications for compensation over short, but not immediate, periods of time.

133. There is a reference to internal equity in an email from Compensation Team Member Ms. Tiffany Wu, indicating “[REDACTED]”

<sup>143</sup> Powerpoint, Compensation Components Setting a Base Salary, GOOG-HIGH-TECH-00036302, exhibit, 1606.16.

<sup>144</sup> Powerpoint, Salary Planning 2007, Presentation to Engineering Directors, 29 October 2007, exhibit, 1609.11.

<sup>145</sup> Powerpoint, Salary Planning 2007, Presentation to Engineering Directors, 29 October 2007, exhibit, 1609.11.

<sup>146</sup> Powerpoint, Salary Planning 2007, Presentation to Engineering Directors, 29 October 2007, exhibit, 1609.11.

[REDACTED]

[REDACTED]

[REDACTED]<sup>147</sup>

134. In another Google document the FAQ section contains this question and answer:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>148</sup>

135. There is also evidence of this from other defendants but not in such a tabular form. Some of this is directly related to discussions of equity. There are other instances, for example at Apple. For example, Mr. Ron Okamoto wrote an email with respect to raises, [REDACTED]

[REDACTED]

[REDACTED]<sup>149</sup>

136. Mr. Okamoto was asked about this in his deposition. He said, “And so the question is, when that happens, what do you do? [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>150</sup>

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<sup>147</sup> Email from Tiffany Wu, September 7, 2007, Goog-High-Tech-00473658, exhibit 1613.

<sup>148</sup> Google document, GOOG-HIGH-TECH-00474908, exhibit 1618.12.

<sup>149</sup> Email from Mr. Ron Okamoto, Apple, September 17, 2010, 231APPLE099371, exhibit 1130.1.

<sup>150</sup> Deposition of Mr. Ron Okamoto, Apple, February 27, 2013, page 135.

137. **Intel:** There is evidence that Intel followed principles of internal equity. For example, in a PowerPoint document from 2002 titled, “NPG Human Resources Job Leveling & Pay Equity Review,” Intel noted, [REDACTED]

[REDACTED]<sup>151</sup> The same document states a few pages later: [REDACTED]

[REDACTED]<sup>152</sup> and [REDACTED]

[REDACTED]<sup>153</sup>

138. Another Intel PowerPoint from 2005 describes a [REDACTED]

[REDACTED]<sup>154</sup>

139. Likewise, the document titled “Manage Offer Module Develop External offer” has a section, [REDACTED] There it is noted [REDACTED]

[REDACTED] The document also instructs, [REDACTED]

<sup>151</sup> Powerpoint, NPG Human Resources Job Leveling & Pay Equity Review, June 6, 2002, 76583DOC00388, exhibit 392.3.

<sup>152</sup> Powerpoint, NPG Human Resources Job Leveling & Pay Equity Review, June 6, 2002, 76583DOC00388, exhibit 392.5.

<sup>153</sup> Powerpoint, NPG Human Resources Job Leveling & Pay Equity Review, June 6, 2002, 76583DOC00388, exhibit 392.5.

<sup>154</sup> Powerpoint, TMG Non-Tech Job Audit – HR, Intel, August 25<sup>th</sup>, 2005, 76583DOC008097\_000003, exhibit 397.3.

[REDACTED]

[REDACTED]

[REDACTED]

140. A document referencing internal equity is a spreadsheet stating [REDACTED]  
[REDACTED].<sup>156</sup> Another document notes a  
number of suggested actions that would seem to be directly consistent with equity. For example,  
[REDACTED]  
[REDACTED] [REDACTED]  
[REDACTED]  
[REDACTED] So this suggests  
merit pay be reduced based on information about a person's position in salary range in the job.  
This also suggests that relatively higher paid individuals (among a set of peers at Intel) would  
have relatively smaller raises. This continues similarly for other situations. For example, in the  
situation where a [REDACTED] [REDACTED]

[REDACTED]<sup>157</sup>

141. A PowerPoint discussing "Base Pay Comparison," notes that when [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]<sup>158</sup>

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<sup>155</sup> Document, HR Global Staffing, Manage Offer Module, Develop External Offer, document Version 1.3, February 13, 2009, 76579DOC005963, exhibit 398.8.

<sup>156</sup> Intel spreadsheet 76579DOC005152\_000017.

<sup>157</sup> PowerPoint, Base Pay Comparison Report Support Overview WW 042011, 765825DOC001211, exhibit 400.17.

<sup>158</sup> PowerPoint, Base Pay Comparison Report Support Overview WW 042011, 765825DOC001211, exhibit 400.17.

142. An Intel document from 2008 questioned, “Are there specific areas where we are experiencing market/internal equity issues?”<sup>159</sup>

143. Similarly, in a document called “Worldwide Focal 2001 Questions and Answers. Intel Confidential,” the following question and answer appear:

144. [REDACTED]

[REDACTED]

[REDACTED]

145. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>160</sup>

146. In reference to the [REDACTED] document mentioned above<sup>161</sup>, Worldwide Focal 2001 Questions and Answers, Intel Confidential, Deborah Conrad was asked, [REDACTED]

[REDACTED] She replied [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED],<sup>162</sup>

147. Ms. Conrad testified that [REDACTED]  
[REDACTED].<sup>163</sup> “Yes, that could be – that could be one of the things that you would look at.”<sup>164</sup>

<sup>159</sup> Powerpoint, Internal Climate, Intel, 76596DOC017025, exhibit 781.16.

<sup>160</sup> Worldwide Focal 2001 Questions and Answers Intel Confidential, Rev 13, Feb 26, 2001. 76583DOC003753, exhibit 391.4.

<sup>161</sup> Worldwide Focal 2001 Questions and Answers Intel Confidential, Rev 13, Feb 26, 2001. 76583DOC003753, exhibit 391.4.

<sup>162</sup> Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, page 202.

<sup>163</sup> Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, page 204.

148. Ms. Conrad also testified about her understanding of the term internal equity. “I understand the term to mean people doing a relatively similar – complexity similar of their job are being compensated in a similar way. So we talked about the grade level example”.

Ms. Conrad continued, “A grade-level engineer and – a grade level 12 engineer, a grade level 12 project manager, a grade level 12 software person are being compensated based on complexity of that role, and there’s a range that – of the compensation that is allocated to that grade, and that gives us equity across – internally across job function.”<sup>165</sup>

149. CEO Paul Otellini noted in an email, [REDACTED]

[REDACTED]  
[REDACTED]<sup>166</sup> The fact that those with relatively high levels of pay as compared to their peers are exempt from raises is consistent with internal equity.

150. Ms. Renee James, Manager of Intel’s Software Services Group, testified that she understood internal equity to mean: “A set of criteria that we use to in aggregate check between different people in the same grade band across a variety of metrics, performance, pay, equity”.<sup>167</sup> She also noted, “I think internal equity is aspirational. I think it is a guideline that helps you look at, you know, apples and oranges data and give you a sense of what’s going on, [REDACTED]

[REDACTED]  
[REDACTED]

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<sup>164</sup> Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, page 204-5.

<sup>165</sup> Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, page 50.

<sup>166</sup> Email from Mr. Paul Otellini, Intel, January 22, 2010, 76616DOC012164, exhibit 478.1.

<sup>167</sup> Deposition of Ms. Renee James, Intel, March 22, 2013, pages 242-3.

[REDACTED]<sup>168</sup> As I note elsewhere and I think is implied here, concepts of equity and pay and performance are not independent. They can also be used simultaneously.

151. Intel Vice President of Human Resources Ms. Patricia Murray also testified about her understanding of the term “internal equity.” “My general understanding of internal equity, it is a process by which a manager or group of managers or even a department judges whether people are being paid fairly next to one another inside the company.”<sup>169</sup>

152. Intel Compensation and Benefits Specialist Daniel McKell explained his understanding of the use of the term “internal equity” at Intel: “internal equity means fairness. Typically, when we talk about internal equity, it’s how employees are paid relative to each other. It can also be part of that – “egalitarian” is another term that we would say – so from an internal equity perspective, everybody participates in stock even though they have different grades. So it has multiple meanings depending on the specific context, but generally is mean fairness”.<sup>170</sup>

153. Mr. McKell testified about HR’s “[REDACTED] explaining, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>171</sup>

154. In a 2005 email, Mr. McKell wrote: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>172</sup> Mr. McKell

explained that [REDACTED]

<sup>168</sup> Deposition of Ms. Renee James, Intel, March 22, 2013, page 244.

<sup>169</sup> Deposition of Ms. Patricia Murray, Intel, February 14, 2013, page 40.

<sup>170</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 207.

<sup>171</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 210.

<sup>172</sup> Email from Danny McKell, Intel, February 2005, 76657DOC004599, exhibit 2033.



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>173</sup>

155. In reference to the same e-mail, Mr. McKell testified that he had written that internal equity “looks pretty good” because “...the people that they had brought in were generally being paid about the same as existing Intel employees.”<sup>174</sup>

156. Mr. McKell also testified about Intel’s merit budgets. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].<sup>175</sup> Note that it is my understanding in this context that Q is referring to quartile in range with Q1 being the smallest quartile and Q4 being the largest (elsewhere in documentation from the defendants Q sometimes refers to quarter of the year). So this suggests that for a given level of performance (e.g. “successful”), those higher in the pay range in advance of the performance rating have a lower suggested raise.

157. Mr. McKell explained, “... so there’s a series of goodies that a manager can allocate, and peanut butter means trying to spread it out as far as it can go”.<sup>176</sup> He was then asked, [REDACTED]

[REDACTED] He replied, [REDACTED]

[REDACTED]

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<sup>173</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 227.

<sup>174</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 228.

<sup>175</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 100.

<sup>176</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 188.

[REDACTED]<sup>177</sup>

Mr. McKell was asked, [REDACTED]

[REDACTED]<sup>178</sup>

158. In my view it is certainly easily possible for organizations to have both a pay for performance system in place, while simultaneously stressing equity and related concepts. In fact, Intel's Daniel McKell testified that the philosophies of both internal equity and meritocracy exist at Intel. "They do exist. I don't believe that they're mutually exclusive. I think meritocracy definitely exists in pay raises and bonus changes and stock grants, and that it is effective. I also think internal equity exists, because managers look at pay fairness relative to what each employee is making, and makes decisions based on that – whether somebody is too high or too low relative to their peers. So I think there are good checks and balances on each other."<sup>179</sup>

159. **Intuit:** There is evidence that Intuit followed principles of internal equity. For example, Director of Talent Acquisition Chris Galy testified about Intuit's practice of benchmarking and considering external and internal employees when setting new hire pay: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Again, it's a data point. [REDACTED]

[REDACTED]

<sup>177</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 189.

<sup>178</sup> Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 190.

<sup>179</sup> Deposition, Mr. Daniel McKell, Intel, March 20, 2013, pages 269-70.

[REDACTED]

[REDACTED]<sup>180</sup>

160. Another example that the pay of one person mattered relative to that of another is included in this testimony from Mr. Galy: Q. “Can you give me a personal example or example about which you have some personal knowledge of an off-cycle pay action?”<sup>181</sup> A. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Q. “I see. [REDACTED]

[REDACTED] A. “Right. [REDACTED]

[REDACTED] Q. “Okay. [REDACTED]

[REDACTED] A. “[REDACTED]

[REDACTED]

[REDACTED]<sup>182</sup> Q. “Is it possible that this is one of the situations in which a manager might – or the business leader might have to go to his manager and ask for a bigger compensation budget?” A. “Yeah.”<sup>183</sup> This very last part indicates that budgets are not always fixed for increases. In fact, sometimes additional resources are gathered and pay is even increased off-cycle.

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<sup>180</sup> Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 180-1.

<sup>181</sup> Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 194-5.

<sup>182</sup> Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 195.

<sup>183</sup> Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 195-6.

161. An email Mr. Galy forwarded also mentions internal equity. That email stated:

[REDACTED]

[REDACTED]<sup>184</sup>

162. An Intuit document titled “Talent Acquisition Hiring Plan” also noted internal equity. In one section, this hiring plan noted [REDACTED]

[REDACTED]<sup>185</sup>

163. There is also mention of “internal equity” in another Intuit document from 2005 that mentions [REDACTED] and notes, [REDACTED]

[REDACTED]

[REDACTED]<sup>186</sup>

164. An additional Intuit document mentions equity. On a page titled [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>187</sup>

165. **Lucasfilm**: There is evidence that Lucasfilm followed principles of internal equity. For example, Lucasfilm Senior Manager, Compensation Michelle Maupin was asked “Do you think fairness was considered at all prior to 2006 in setting employee salaries?” She replied “What do you mean by ‘fairness’”? She was then asked “Was internal equity considered at all prior to 2006 in setting employees’ salaries?” “Based on my knowledge and information that I have seen, documents I’ve looked at in the past, yes”.<sup>188</sup>

<sup>184</sup> Email from Mr. Chris Galy, Intuit, March 3, 2010, INTUIT\_039793, exhibit 2142.1.

<sup>185</sup> Document from Intuit, Talent Acquisition Hiring Plan, INTUIT\_007866, exhibit 1107.2.

<sup>186</sup> Powerpoint, INTUIT Total Rewards & Pay Decisions Toolkit, Intuit, May 2005, INTUIT\_043560, exhibit 2739.31.

<sup>187</sup> Powerpoint, Focal Decisions 2005, Communications Session for Senior Managers, June 2005, Intuit, INTUIT\_052841, exhibit 2740.16.

<sup>188</sup> Deposition of Ms. Michelle Maupin, February 12, 2013, page 85.

166. Ms. Maupin also testified, “I would anticipate that if a junior level or a junior-skilled employee was at the same or same pay level as a senior employee, that might cause dissatisfaction for even the manager of those employees.”<sup>189</sup>

167. Ms. Maupin was asked, “Can you explain the significance of peer relationships in setting compensation at Lucasfilm?” She replied, “The significance is to consider individual employees’ pay within a similar job and pay range using the same type of skill sets to appropriately align those employees relative to their peers and to market.”<sup>190</sup>

168. In her declaration, Ms. Maupin also noted equity: “Lucasfilm occasionally adjusts salaries outside of the April pay-for-performance process. These are referred to as out-of-cycle increased and are given for promotions, and equity adjustments. An equity adjustment is intended to bring an employee’s compensation more in line with (but not necessarily equal to) internal peers or the targeted percentile or external peer compensation.”<sup>191</sup>

169. Ms. Michelle Maupin stated by email: “...Janetta has already told him I don’t agree with [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Unless we want to raise salaries of the other EA’s [sic], I think this is fair.”<sup>192</sup>

170. In questioning related to an email from Ms. Maupin to Chief Administrative Officer Jan van der Voort where Ms. Maupin wrote, “Internal equity is a concern, although we

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<sup>189</sup> Deposition of Ms. Michelle Maupin, February 12, 2013, page 175.

<sup>190</sup> Deposition of Ms. Michelle Maupin, February 12, 2013, page 178.

<sup>191</sup> Declaration of Ms. Michelle Maupin, January 17, 2013, page 9.

<sup>192</sup> Email from Ms. Michelle Maupin, November 4, 2010, LUCAS00198130, exhibit 729.1.

just hired ...”<sup>193</sup> Ms. Maupin was asked, “Was the internal equity concern that [REDACTED] might be paid more than her colleagues?” She answered, “In some cases.”<sup>194</sup>

171. In another situation at Lucasfilm, Ms. Jan van der Voort wrote a message noting, “Steve, I think this needs Jim Ward’s buy-in ... at this level, we’re getting in to some interesting internal equity issues, which I want Jim to be aware of before I decide.”<sup>195</sup>

172. Ms. Van der Voort testified about her familiarity with internal equity at Lucasfilm. “It means generally that you are aware of where similarly situated employees are from a compensation perspective, either within their division or across the company depending on what you are looking at.” Then she was asked, “Is internal equity a consideration in setting salary grades?” She replied, “It is a consideration, yes.”<sup>196</sup>

173. Senior Director of Human Resources Sharon Coker discussed internal equity in her deposition. “Internal equity is that people within the company, internally within the company – and it has nothing to do with what the market pays, if you want to be literal with it. But internal equity then means that at my company I’m paid comparably – not exactly, but I’m paid comparably to other people with the same set of experience and same level of performance for doing, the same work.”<sup>197</sup>

174. Ms. Coker was asked, “Did you understand the idea of – concept of Lucas – excuse me, the idea of internal equity to be something that all sorts of companies thought about when constructing or modifying their compensation structures?”<sup>198</sup> She answered, “Absolutely.

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<sup>193</sup> Email from Ms. Michelle Maupin to Jan van der Voort, May 8, 2008, LUCAS00201069, exhibit 727.3.

<sup>194</sup> Deposition of Ms. Michelle Maupin, February 12, 2013, page 182.

<sup>195</sup> Email from Ms. Jan van der Voort, July 9, 2007, LUCAS00060705, exhibit 728.1.

<sup>196</sup> Deposition of Ms. Jan van der Voort, February 5, 2013, page 200.

<sup>197</sup> Deposition of Ms. Sharon Coker, LucasFilm, November 1, 2012, page 259.

<sup>198</sup> Deposition of Ms. Sharon Coker, LucasFilm, November 1, 2012, page 259-60.

And if the company didn't, the employees would remind them. So, you know, again, I think it's – it is – internal equity is a consideration in compensation decisions.”<sup>199</sup>

175. Ms. Coker also noted in her deposition, “... I would say that almost always when you made – not always, but often if you would make an individual decision, it could impact other employees in similar positions. So you had to look at that.”<sup>200</sup>

176. Ms. Coker testified about internal equity: “...internal equity would be – it could mean two things. One is it could mean that there were a group of employees in a job family doing similar work and at one company, perhaps even they were paying X or a range of X to Y for those positions. Across the street, more or less in one of the other divisions, they might be paying from X to Z for those positions. So it was within Lucas companies are there any – can we identify any areas where we have, you know, what I would call a ‘pay discrepancy,’ where we’re not paying within reason within ranges.”<sup>201</sup>

177. There are multiple references to “call out for equity” in an email from Ms. Vanessa Hall at Lucasfilm.<sup>202</sup>

178. Internal equity is also noted in an additional Lucasfilm document from 2004: “Evaluate Internal Candidates’ qualifications against market value and internal equity.”<sup>203</sup>

179. Likewise, a Lucas film document from 2006 mentions “Gathering input on comp issues” including “internal equity”.<sup>204</sup>

180. **Pixar:** There is also evidence that Pixar followed principles of internal equity. In her deposition, Pixar Vice President of Human Resources Lori McAdams was asked, “Now, how

<sup>199</sup> Deposition of Ms. Sharon Coker, LucasFilm, November 1, 2012, page 260.

<sup>200</sup> Deposition of Ms. Sharon Coker, LucasFilm, November 1, 2012, page 245.

<sup>201</sup> Deposition of Ms. Sharon Coker, LucasFilm, November 1, 2012, page 283.

<sup>202</sup> Email from Ms. Vanessa Hall, February 14, 2011, LUCAS00199905-6.

<sup>203</sup> Compensation Analysis and Review Process, Internal Transfer, DRAFT Last Updated 11-23-04, LUCAS00185312, exhibit 716.

<sup>204</sup> Powerpoint, Lucasfilm Ltd. Compensation Project Status Executive Review, Lucasfilm, December 7, 2006, LUCAS00027982, exhibit 359.4.

is the compensation of a new employee – how is the base salary of a new salaried employee determined?” She answered, “We look at their experience and education and how we evaluate them against existing employees – and make them an offer relative to their experience and – and our existing talent”.<sup>205</sup> Note the reference to existing talent.

181. While not directly using the term “equity” the deposition of Stephanie Sheehy describes related issues. She notes, “The goal of this new salary proposal is to compensate the lowest paid team-members who are performing at the highest levels. This is a ‘pre-emptive strike’. We want to send a clear message to these engineers that we value them at least as much as some new hires who are seeing much more competitive offers from other companies.”<sup>206</sup>

## **VII. Internal Equity and Pay for Performance Are Not Mutually Exclusive**

182. In this section I discuss the issues of pay for performance and internal equity. Both pay and performance and internal equity are often-discussed in the realm of compensation. I discuss here that it is possible to have a compensation system that is simultaneously consistent with pay for performance and also with internal equity.

183. The Google Figure 12 is quite interesting since it is an example in one space where one can see a system that reflect both “pay for performance” and equity concerns at the same time. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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<sup>205</sup> Deposition of Ms. Lori McAdams, August 2, 2012, page 32.

<sup>206</sup> Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 151.



184. Adobe also has information that is very similar to the Google Figure 12. In Table 13, I have included the left 1/3 (the part that is relevant for the United States) on “salary increase matrices”.<sup>207</sup> The table has two parts. The top is for managers. The bottom is for “individual contributors”<sup>208</sup> (IC). It is clear from Table 13 for Adobe that, again, [REDACTED]

185. I found what appears to be similar information at Apple. In an Apple document<sup>209</sup> there appears to be evidence that [REDACTED]

186. From a different Adobe PowerPoint slide, I have used information to create Figure 15 which is a matrix the vertical axis of which (rows) appears that it could be performance rating with “HI” as highest, “SC” the middle ranking and “LP” the lowest ranking.<sup>211</sup> In fact, Ms. Arriada-Keiper is asked at one point about three levels of performance: “What were the three levels of performance when there were three?” and she replied “HHI, solid and low”.<sup>212</sup> The shorthand for all three appears to match three of the four in Figure 13. [REDACTED]

<sup>207</sup> Powerpoint, 2010 Annual Performance Review, Compensation Training for Managers, December 2009, ADOBE\_100614, exhibit 2487.15.

<sup>208</sup> Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 165.

<sup>209</sup> Powerpoint, Total Rewards Planning, FY07, September 2006, Apple, 231APPLE095052, exhibit 1855.107.

<sup>210</sup> Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, page 122.

<sup>211</sup> Powerpoint, Global Market Analysis, Adobe, exhibit 2486.33.

<sup>212</sup> Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 96.

This expresses the same concept as in previous examples for Google (Figure 12), Adobe (Figure 13) and Apple (Figure 14).<sup>213</sup>

187. Intel also has a document that appears to be consistent with these ideas but is not in a tabular format.<sup>214</sup> In this document there are various [REDACTED] and then [REDACTED] that I have reproduced in Figure 16. [REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].<sup>215</sup> Each of these scenario and

action pairs is consistent with the examples in Google (Figure 12), Adobe (Figure 13) and Apple (Figure 14).

188. So there is direct evidence of compatibility between principles of internal equity and pay-for-performance that I found from four of the defendant companies (Google in Figure 12, Adobe in Figure 13 (and perhaps Figure 15 if I have interpreted those data correctly), Apple in Figure 14 and Intel in Figure 16. These examples make explicit that the companies give relatively lower raises to those who are relatively more highly paid in a given grade for a given performance level.

189. There is also evidence of this from other defendants but not in such an express tabular form. Some of this is directly related to discussions of equity. There are other instances, for example at Apple. There, Mr. Ron Okamoto wrote an email with respect to raises, “An

<sup>213</sup> Powerpoint, Global Market Analysis, Adobe, exhibit 2486.33.

<sup>214</sup> Powerpoint, Base Pay Comparison report Support Overview WW 042011, 765825DOC001211, exhibit 400.17.

<sup>215</sup> Powerpoint, Base Pay Comparison report Support Overview WW 042011, 765825DOC001211, exhibit 400.17.

[REDACTED]

[REDACTED]<sup>216</sup>

190. Mr. Okamoto was asked about this in his deposition. He said “And so the question is, when that happens, what do you do?” [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>217</sup>

191. It can be shown that pay and performance and issues of equity are not mutually exclusive in other ways. Consider two employees in a work group who are both paid a base salary and a “commission” or piece-rate for some level of output (say sales of some item such as a book or car). Arranging the system so that appropriately grouped workers have similar base salary and commission rate is certainly equitable. At the same time, this compensation system has a pay for performance component.

### **VIII. How Restricting Cold Calling Can Restrict Information and Pay**

192. Restricting cold calling can clearly restrict information and pay. In many markets, employees are hired due to cold calls.<sup>218</sup>

193. This can be illustrated by the findings of the Court in this case. “Plaintiffs have set forth evidence of Defendants’ anti-solicitation agreements, which were memorialized in CEO-to-CEO emails and other documents, such as ‘Do Not Call’ lists putting each firm’s

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<sup>216</sup> Email from Mr. Ron Okamoto, Apple, September 17, 2010, 231APPLE099371, exhibit 1130.1.

<sup>217</sup> Deposition of Mr. Ron Okamoto, Apple, February 27, 2013, page 135.

<sup>218</sup> There is a difference between an organization’s product market competitors and its labor market competitors. Some organizations may not compete in the market for goods and services. Nevertheless, they may hire from among the same pool of workers.

employees off-limits to other Defendants.”<sup>219</sup> “The question presented by this case is not whether Defendants’ anti-solicitation agreements had an impact on any employees. Defendants concede that some employees may have been impacted. *See* Tr. at 144:11-12 (‘And I admit at the start, we are not saying that nobody was impacted.’).”<sup>220</sup>

194. In the instance of this case, the defendant firms limited the market for the employees by restricting cold calling. This clearly led to what would otherwise be higher levels of compensation for some of those in the firms, except that the restrictions were in place.

195. This situation of lower levels of compensation for some can directly lead to lower levels of others due to the very nature of the formalized pay systems in place at the defendants. This is even more likely among the technical class consisting of those described in Appendix B to the October 1, 2012 Expert Report of Dr. Edward E. Leamer, and who worked for a Defendant while that defendant participated in at least one “no cold-call” agreement with another defendant.

196. The formalized systems in place at the defendants relied on structures, external data from the market and the like, and notions of equity were present at defendants. As a result, those effects cycle on to other employees and their levels of compensation. Therefore, the formal compensation structures could lead to an effect on nearly all class members.

197. In a very strict simple supply and demand model with perfect competition and immediate complete information prices of all sorts can adjust immediately. But many markets don’t hold all of these characteristics or behave this way. Some economists discuss the idea that workers are paid their value at any given time. But we know of many instances where pay changes at discreet moments and surely this is not always coincident with discreet changes in productivity.

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<sup>219</sup> Order by Judge Lucy H. Koh, Case5:11-cv-02509-LHK Document382 Filed04/05/13, pages 11-12.

<sup>220</sup> Order by Judge Lucy H. Koh, Case5:11-cv-02509-LHK Document382 Filed04/05/13, page 13.

198. An example of this is when someone gets a raise at a point in time or when he or she changes jobs for a higher level of compensation or when, in response to new information, compensation levels change. Take for example the email from Mr. Arnon Geshuri from Google where he notes [REDACTED]

[REDACTED]

[REDACTED]<sup>221</sup> [REDACTED]

[REDACTED]

[REDACTED]<sup>222</sup> Surely, calling in to employees they previously were not contacting could have positive effects on the compensation of those to whom they would call, either at their current employer, elsewhere or at Google.

199. An additional example of a rapid change in compensation due to new information comes from Intuit. Mr. Alex Lintner was asked “Are you aware of any instances in which Intuit has identified employees who should be the focus of retention efforts?” He replied “Oh, yes. Lots of them. We go through that all the time. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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<sup>221</sup> GOOGLE-High\_Tech-00379327, exhibit 614, email from Mr. Arnon Geshuri on Saturday March 15, 2008.

<sup>222</sup> GOOGLE-High\_Tech-00379327, exhibit 614, email from Mr. Arnon Geshuri on Saturday March 15, 2008.

[REDACTED]

[REDACTED]

[REDACTED]<sup>223</sup>.

200. Again, not all markets react immediately since information is not always perfect to all parties to a transaction. In fact, due to issues of internal comparisons, sometimes individuals are hired from the outside (for example) and have relatively higher levels of compensation than others in their workgroup, even once performance is taken into account. As a result, they may see slower growth of pay, relative to others in a similar job as a way to bring compensation together. This is an interesting issue and suggests that issues of internal equity are not necessarily immediately solved. That is, whether bringing in a new person with a higher wage to a new workgroup or raising the wage of someone in a work group does not necessarily mean that the levels of compensation of everyone else need be raised immediately also. Equity in this sense does not mean that all needs to immediately adjust. But equity can still be an issue for the organization that they can solve over time.

#### **IX. How A Structured Compensation System Can Be Related to Systematic Compensation Effects**

201. A structured compensation system of the type I have described here can lead to systematic pay effects. In fact, entire pay systems can change at once and everyone can be affected. The concept of equity is related; this is common in the compensation area and widely known by practitioners who design pay systems in organizations.

202. In a recent book (Hallock, 2012), I wrote about what is known as “equity theory,” among a set of psychological theories that are important to compensation. I wrote, “The idea behind equity theory (Adams, 1965) is that workers will be motivated when their perceived

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<sup>223</sup> Deposition of Mr. Alex Lintner, Intuit, March 25, 2013, pages 107-8.

inputs (e.g. effort) match their perceived outputs (e.g. pay). If someone thinks she is being unfairly paid (e.g. others are being paid more for the same perceived effort), she will become uncomfortable and unmotivated”.<sup>224</sup>

203. Milkovich, Newman and Gerhart (2011) also discuss equity and fairness.<sup>225</sup> In fact, issues related to internal equity are one important reason organizations set up internal pay structures as discussed above. Recall that those structures are typically set up internally, even before going to the external market data.

204. Milkovich, Newman and Gerhart (2011) note that “the research suggests that employers judge the fairness of their organization’s internal pay structure by making multiple comparisons” including “comparing to jobs similar to their own,” “comparing their jobs to others at the same employer,” and “comparing their jobs’ pay against external pay levels”.<sup>226</sup>

205. Google’s “big bang” compensation increase is an important example of how a stimulus that may appear on the face to affect only a subset of employees, affected all employees. In this example, all employees of Google were given an instantaneous raise of 10%. Google’s former Senior Vice President of People Operations (HR) Ms. Shona Brown notes “... we unilaterally, in other words, without a performance orientation to it, we looked across the whole company and we said we’re going to give a ten percent – it doesn’t – it was a percentile but still, we gave it to everybody”.<sup>227</sup>

206. Other organizations commonly move the entire pay structure all at once, at least annually. Refer again to Figure 1. This is an example from the U.S. Government’s salary table. This entire table can change from year to year. Other examples of this include unionized

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<sup>224</sup> Hallock (2012), page 121.

<sup>225</sup> See Milkovich, Newman and Gerhart (2011), page 83.

<sup>226</sup> Milkovich, Newman and Gerhart (2011), page 83.

<sup>227</sup> Deposition of Dr. Shona Brown, Google, January 30, 2013, page 232.

contracts for school teachers and firefighters where the entire schedule moves at once. In fact, entire structures move from year to year in all kinds of organizations, including at defendants over the recent past. I will show some examples below.

207. If it is the case, in a particular organization or organizations, that those at the top of a pay scale help determine the relative gains of those “below” them, then restricting the pay of those at the top of a grid necessarily affects those below.

#### **X. Examples of How Market Pressure Led to Pay Changes at Defendants**

208. There are clear examples of how pay changed at some defendants. I will discuss a few examples here, including how market pressure led to pay changes at defendants.

209. One example is from Adobe. Mr. Chizen, commenting on his time as CEO, noted, “Typically the HR people would come to me and say, we really need to move the ranges based on the Radford data. Here is the Radford data. So it will be me approving a recommendation. Again, the philosophy of the company, which I said, we’re going to pay within this percentile for these – at a high level ... for, you know, engineering product, we’ll pay this, for the rest of the organization we’re paying within the Radford, so if Radford moved automatically, the – that would move”.<sup>228</sup> He was then asked “And that was my question, whether in order for the compensation for any particular people who fell within that range to move, did you have – did you have to validate Radford’s conclusions that it moved ... 5 percent of that was just something - ”.<sup>229</sup> Mr. Chizen replied “That was typically – no, with one caveat, we also had to live within our budget. So if Radford moved 20 percent, and we can only afford to do a merit increase for the company of 5 percent, we had to make a conscious decision of which positions we were going to let go to the 20 percent versus which ones you were going to

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<sup>228</sup> Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, page 100.

<sup>229</sup> Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, pages 100-1.



keep at 2 percent. That's when I would get involved". He was then asked "Did that ever happen from time to time, that the market data came back in a way that you couldn't afford?" He replied, "Typically not. Adobe was such a cash rich company, expense was not my number one concern".<sup>230</sup>

210. Another example is from Google. Google has provided several sets of salary grids (including the one already discussed in Figure 7) and I will discuss only a few here. For example, I start with the 2005 salary structure and compare two sets of categories in two regions.<sup>231</sup> The data are displayed in Figure 17. The regions are referred to as [REDACTED] and [REDACTED] and the categories are [REDACTED] for another. For these two sets of jobs and regions in 2005, I created the spreadsheet in Figure 17. I repeated this tabulation in the same figure using data from Google in 2004.<sup>232</sup>

211. [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]<sup>233</sup>

212. Multiple comparisons are easily made from these data. For example, using only 2005 data, if one compares [REDACTED] in Figure 18 to [REDACTED] [REDACTED] in Figure 18, it is clear to see that nearly every single element of the [REDACTED] are precisely [REDACTED] different from the "[REDACTED]". This is true both when comparing each T grade and each E grade within 2005 and within 2004. The only exception is the maximum column in 2005 for the T grades. So of 180 possible numbers, [REDACTED] are [REDACTED]. This implies

<sup>230</sup> Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, page 101.

<sup>231</sup> GOOG-HIGH-TECH-00625148 Contains a courtesy reproduction of a compensation spreadsheet titled 2005 Global Ranges - for MQU May-06.xls.

<sup>232</sup> Exhibit 1600.1 "Google 2004 Salary Ranges".

<sup>233</sup> GOOG-HIGH-TECH-00625148 Contains a courtesy reproduction of a compensation spreadsheet titled 2005 Global Ranges - for MQU May-06.xls and Exhibit 1600.1 "Google 2004 Salary Ranges".

a formal structure that is standardized for the company for these pay grades, with a few exceptions.

213. In fact, Google was explicit in changing its salary structure at one point in time and did so universally with the “big bang” in which it increased salaries by 10% across the board.

214. Google documents [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>234</sup>.

215. [REDACTED]

[REDACTED]

[REDACTED]<sup>235</sup>

216. At Lucasfilm Ms. Micheline Chau testified that over time Lucasfilm changed its payment targets from [REDACTED] [REDACTED] [REDACTED] of the external market benchmark.<sup>236</sup>

217. Ms. Chau clarified, [REDACTED] [REDACTED], again, like I said, depending on the industry circumstance, sometimes was in the – sometimes it was [REDACTED] [REDACTED] for critical talent, and when economic conditions didn’t need it, it [REDACTED] [REDACTED].<sup>237</sup>

218. Data from Lucasfilm also show a systematic structure with pay changes and differences across levels. I created a figure using data on the 2008 and 2006 salary structure at Lucasfilm in Figure 18.<sup>238</sup>

<sup>234</sup> Deposition of Mr. Frank Wagner, Google, March 7, 2013, page 216.

<sup>235</sup> Email from Anuj Chandarana, Google, December 2, 2010, exhibit 1629.

<sup>236</sup> Deposition of Ms. Michelene Chau, Lucasfilm, February 21, 2013, page 126.

<sup>237</sup> Deposition of Ms. Michelene Chau, Lucasfilm, February 21, 2013, page 127.

<sup>238</sup> LUCAS00188913 (Exhibit 711.29) for 2008 and LUCAS00188912 (exhibit 360) for 2006.

219. In 2008 there are 23 Salary Grades reported for Lucasfilm and in 2006 there are 21 Salary Grades reported for Lucasfilm.<sup>239</sup> As shown in Figure 18, for each of these grades there is a minimum salary, a midpoint salary and a maximum salary reported in each of the two years. There is interesting formality and symmetry to the Lucasfilm structure. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

220. Further at Lucasfilm, within each grade, [REDACTED]

[REDACTED]

[REDACTED]

221. In addition, at Lucasfilm, within the three metrics (minimum, midpoint or maximum), [REDACTED]

[REDACTED]

[REDACTED]

222. Finally, at Lucasfilm, the entire structure [REDACTED]

223. In the deposition of Stephanie Sheehy at Pixar, there is discussion of changes in pay for an entire group. Ms. Sheehy was asked, “Why did Pixar decide it was necessary for the tools group to have their base salaries on average at a higher than [REDACTED] level?” She answered “We were competing with technology companies in the Bay Area, and our recruiting team was hearing from candidates that they were getting better offers elsewhere”.<sup>240</sup> She was then asked “What was the percentile level that was the aspiration for this group of employees?”

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<sup>239</sup> LUCAS00188913 (Exhibit 711.29) for 2008 and LUCAS00188912 (exhibit 360) for 2006.

<sup>240</sup> Deposition of Ms. Stephanie Sheehy, March 5, 2013, page 106.

<sup>241</sup> She replied, “[REDACTED]”.<sup>242</sup> In the absence of the recruiting team hearing from candidates that those candidates were getting better offers elsewhere, there would have been less pressure to target a higher percentile.

**XI. Agreements of the Kind Described in this Case Could Limit Recruiting and Have Negative Consequences on Compensation for Employees of Defendant Firms**

224. In this section I will discuss more about how the so called no cold calling agreements could have negative consequences, not only for those directly affected by the no cold-calling but also for nearly all others at the Defendant firms, particularly in the technical and creative areas.

225. Cold calling is an important part of recruiting in some industries. In fact, in some types of jobs, a large majority of the jobs are filled through this method.

226. At the same time, many employees can see their salaries increase and stay at their current employers by using a competing offer (or even the threat of a competing offer). This is true in many industries.

227. Restricting cold-calling can have negative consequences for the compensation of those who are cold called, could be cold called and potentially for nearly all others in their organization.

228. A consideration in this case is that the defendants represented very well-known, celebrated companies. For many reasons these could be thought of as “employers of choice”. By having restrictive recruiting practices at these firms and for those employees of those firms who were highly coveted by other employees, there could be negative consequences for pay and pay growth.

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<sup>241</sup> Deposition of Ms. Stephanie Sheehy, March 5, 2013, page 106-7.

<sup>242</sup> Deposition of Ms. Stephanie Sheehy, March 5, 2013, page 107.

229. Important in this argument is the issue of equity as outlined earlier. To the extent that there is an internal structure, any restriction at the top could have a consequent cascading effect on those below. This can be seen even back in several of the Figures that either have job evaluation points or even grades as the horizontal axis. The horizontal axes in each of those Figures represents job evaluation points or what have been called the things that people do at work or the contributions that people are having to the organization.<sup>243</sup> Taking the example of Figure 7, if the pay is restricted for any of the kinds of people who may be at the “top” of the boxes, then the boxes may stop growing from period to period and all employees – even those not at the top of the box can be affected. But, as indicated elsewhere cascading effects on others do not rely on the pay of the highest paid being restricted.

230. There is evidence in economics and in other areas that fairness in wage setting and considerations of peers in compensation matters (e.g. Levine, 1993 and Card, Mas, Moretti, and Saez, 2012).

231. There is substantial evidence from each of the defendants that fairness and equity considerations mattered.

232. In addition, it is not only the case that those who are paid at the “top of the box” are the ones who are being cold called. In the absence of any cold-calling restrictions or agreements, any employee can be cold called. Even if cold calling affecting pay is restricted at the mid-point, for example, due to the nature of the structure and use of external data, there can be negative compensation consequences for even those who would not be cold-called.

233. I also note that no workers have to move from one company to another for no-cold-call agreements to have a negative effect on compensation. This is plain to see. If a recruiter working for company X calls and asks an employee of firm Y of her potential interest in

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<sup>243</sup> See Hallock (2012) page 62.

moving, her compensation can't go down and may go up if she can use any potential or realized offer to bid up her own pay internally. So even if not a single employee moves, cold-calling agreements could have negative consequences for pay and pay growth.

234. It should also be noted performance is not always as easily measured as some argue. In fact, performance is sometimes very hard to measure and social scientists have devised ways to consider compensation in interesting ways precisely because performance is difficult to measure in some situations.<sup>244</sup>

235. Intuit also provides an example on competition. In a PowerPoint presentation, Intuit noted: "The more passive the candidate, the fewer competitors for talent".<sup>245</sup>

236. Also at Intuit, Mr. Chris Galy was asked, "Okay. How – What kind of conversation would you typically have with candidates about compensation in an initial cold-call?" He replied, "It comes up. Again, generally driven – the goal of – the first, primary goal is to generate interest and awareness and see if there's a match. But then the next thing is you don't want to waste people's time and they don't want to waste yours. And so it's – these days, it's generally, you know, hey, give me a ballpark. Are we doing apples to apples, or are we – are you in Yankee Stadium and we're in the Oakland Coliseum?"<sup>246</sup> He was then asked, "So is that usually you asking them how much they make or them asking you what the ballpark is for the position, or could it be either way?" He replied, "It could be either way. But generally speaking, I like to leave it up to them to tell me what their experiences are. So ... yeah, I mean, it could be either way".<sup>247</sup>

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<sup>244</sup> See for example, Lazear and Rosen (1981).

<sup>245</sup> Powerpoint, Candidate Generation, Intuit, December 12, 2006, INTUIT\_034255, exhibit 2135.25.

<sup>246</sup> Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 165.

<sup>247</sup> Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 166.

**XII. Given the Defendants' Formalized Pay Structures and Compensation Design, Effects on Compensation Could be Widely Felt**

237. Given the defendants' formalized pay structures and compensation design as well as issues of equity and fairness present in the defendant firms, there can be widespread and systematic effects on compensation connected to the do-not-call agreements.

238. Elsewhere in this report, it is documented that the defendant firms had formalized compensation systems. It is also documented that the defendant firms were interested in internal equity and issues of fairness. It is also documented how pay changed at defendant companies. A direct impact on pay could occur if an employee did not receive a cold call, or if the upward wage pressures on any of the employees in related groups or job families were disrupted.

239. One way that pay can be lowered at defendant firms for nearly all workers has to do with the "top" workers. The defendants were very interested in attracting and retaining many extraordinary workers. The defendant firms include very well-known and prestigious brands for employees. Some of the cold-calling restrictions were clearly targeted to this very high-end type of worker. I have shown previously that it is straightforward to show that cold-calling can have a direct impact on individual workers. Since the "top of the box" is, therefore, lowered in the presence of cold-calling restrictions, the entire box may be as well, thus effecting nearly all other workers. But, again, the restrictions need not only affect the highest paid workers for calling restriction to have effects on others.

240. Another interesting way in which wages can be influenced is external market data. Here, there is evidence that defendants benchmark their data to external sources, most commonly Radford or Croner. But here, to the extent that pay is lowered at other firms through anti-competitive and other behavior of firms, the market data they use for their own structure will

be lower. And, as a result, their own pay levels will be lower than they would be in the absence of such agreements.

### **XIII. The Technical Class**

241. My understanding of the case is that the plaintiffs originally proposed two types of potential employee classes. The first has been called the “All-Salaried Employee Class” and the second has been called the “Technical Class”. My understanding is that the “Technical Class” is defined in Appendix B of Edward Leamer’s expert report. My findings above apply to both potential classes. However, I turn now to a specific examination of the proposed technical class.

242. In reviewing that list of titles included in the proposed “technical class,” I observed that it includes “Software Engineers,” “Hardware Engineers and Component Designers,” and “Employees classified as technical professionals by their employers.” Note that the following are not included among the “technical class”: employees in “marketing, accounting, finance, operations, etc.,” “senior executives,” and “non-US” employees, among others.<sup>248</sup> I have examined the definition of the “technical” class and see it as distinct from the “all-salaried class”. It also seems to me to be a reasonable definition of the technical class based on the Defendants’ job families for their technical workers.<sup>249</sup>

243. It is common to have multiple job titles within job families. Similar jobs, job titles and occupations are often grouped within the same job family. Milkovich, Newman and Gerhart (2014) discuss one example of a way to categorize job families, jobs and tasks. They show a figure where display the relationships among job families, jobs and tasks. They indicate

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<sup>248</sup> Expert Report of Edward E. Leamer, October 3, 2012, pages 74-7.

<sup>249</sup> Expert Report of Edward E. Leamer, October 3, 2012, pages 74-7.



that a “job family” is a “[g]rouping of related jobs with broadly similar content; e.g., marketing, engineering, office support, technical”.<sup>250</sup>

244. The job families as presented in Appendix B of Edward Leamer’s expert report also appear to have appropriate types of job titles grouped together, in a way that would be reasonable from the perspective of compensation design.

245. I understand that all members of the “technical class” are also members of the “all-salaried class” but, of course, not all members of the “all salaried class” are members of the “technical class”.

246. Based on my review of the evidence and my expertise in compensation design, my belief is that although the restrictions could affect all or nearly all salaried workers, there was more concentration and emphasis on the technical class.

#### **XIV. Conclusions**

247. Based on the documents I have considered and my knowledge of labor markets and compensation systems I have a number of conclusions. These views are expressed in the report and some are summarized here.

248. The defendants had formalized compensation systems. These include using market surveys, having clear structures, using market pay lines, grades and many other features of formalized compensation systems.

249. The defendants made use of the ideas of compensation beyond salary. These other forms of compensation include components such as bonuses and stock.

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<sup>250</sup> Milkovich, Newman and Gerhart (2014), page 104.

250. Issues of internal equity and equity in general were important to the defendant firms. Whether they used the terms or not, the concepts of internal equity and also generally treating similar employees similarly were important to defendant firms.

251. There is documented evidence that pay moved in defendant firms in systematic and structured ways.

252. A compensation system that includes pay for performance is not mutually exclusive from one that takes internal equity into account.

253. Restrictions on cold-calling clearly had impacts on employees among the defendant firms. In particular, restrictions on cold-calling hamper compensation levels for employees. The restrictions could be expected to hamper levels of compensation for those who would have been cold-called and for all or nearly all salaried employees of defendant firms.

254. Agreements such as restrictions on cold-calling could be expected to limit and have negative consequences on employee compensation for those workers directly involved and for nearly all employees. Given the formalized pay structures and compensation design in defendant firms nearly all salaried employees could be expected to have pay that would otherwise be higher.

255. The formalized systems in place at the defendants relied on structures, external data from the market and the like, and notions of equity were present at defendants. As a result, those effects cycle on to other employees and their levels of compensation. Therefore, the formal compensation structures could be expected to lead to an effect on nearly all class members.

256. Although I have not been asked to estimate the magnitude of damages in this case, based on my knowledge of compensations systems and the materials considered, I believe

that agreements against cold calling, such as the agreements at issue in this case, are predicted to suppress the compensation of all or nearly all members of plaintiffs' proposed Technical Employee Class, including those with different job titles.

257. I reserve the right to supplement this report in view of any new material or information provided to me after the date of this report.

A handwritten signature in black ink, appearing to read "Kevin F. Hallock", is written over a solid black horizontal line.

Kevin F. Hallock

May 10, 2013

**APPENDIX A**

**Kevin F. Hallock CV**

**KEVIN F. HALLOCK**

**April 2013**

**OFFICE**

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Born: March 10 1969, Palo Alto, CA  
Married: Tina Hallock in 1991  
Children: Emily 1994, Tyler 1998

**CURRENT POSITIONS**

Donald C. Opatrny '74 Chair of the Department of Economics, Cornell University (2012 – present)

Joseph R. Rich '80 Professor, Cornell University (2011 – present)

Professor, Department of Economics, Cornell University (2011 – present)

Professor, Department of Human Resource Studies, Cornell University (2007 – present)

Director, Institute for Compensation Studies (ICS), Cornell University (2009 – present)

Compensation Committee Member, Guthrie Health, Sayre PA (2012 – present)

House Fellow, Carl Becker House, Cornell University (2011 – present)

Research Associate, Labor Studies, National Bureau of Economic Research (2003 - present)

Member, Board of Directors of Society of Certified Professionals, WorldatWork (2012 - present)

Faculty Fellow, Atkinson Center for a Sustainable Future (ACSF), (2012 – present)

Distinguished Principal Researcher, The Conference Board (2011 – present)

Fellow, Stanford University Center for the Study of Poverty and Inequality (2006 – present)

Faculty Affiliate, Center for the Study of Inequality, Cornell University (2007 – present)

**EDUCATION**

Princeton University – Ph.D. Economics, 1995.

Princeton University – M.A. Economics, 1993.

University of Massachusetts at Amherst – B.A. Economics, *Summa Cum Laude*, 1991.

Hopkins Academy, Hadley Massachusetts, Valedictorian, 1987.

## **OTHER AND PREVIOUS POSITIONS**

Chair, Department of Labor Economics, Cornell University (2010 – 2011)

Associate Chair, Department of Economics, Cornell University (2011 – 2012)

Professor, Department of Labor Economics, Cornell University (2007 – 2011)

Chair, Cornell University Financial Policy Committee (2007 – 2008)

Director of Research, Center for Advanced Human Resource Studies (CAHRS), Cornell University (2007 – 2012)

Senior Fellow, Executive Compensation, Board Compensation and Board Practices, The Conference Board (2008 – 2011)

Member, Board of Directors, WorldatWork (2009 – 2011)

Member, WorldatWork Executive Compensation Advisory Board (2007 – 2009)

Faculty Member, Graduate Field of Economics, Cornell University (2005 - present)

Faculty Member, Graduate Field of Industrial & Labor Relations, Cornell University (2006 – present)

Associate Professor of Human Resource Studies, ILR School, Cornell University (2005 - 2007)

Acting Chair, Department of Human Resource Studies, ILR School, Cornell University (Fall 2006)

Associate Professor of Economics and of Labor and Industrial Relations, University of Illinois at Urbana-Champaign (2001 – 2005)

Associate Professor of Finance, University of Illinois at Urbana-Champaign (2002 – 2005)

Co-Director, Center for Human Resource Management, University of Illinois (2004 – 2005)

Visiting Associate Professor, Institute of Government and Public Affairs, University of Illinois at Urbana-Champaign (2005)

Research Consultant, Research Department, Federal Reserve Bank of Chicago (2003 – 2005)

Visiting Assistant Professor, Department of Economics and Research Associate, Industrial Relations Section, Princeton University (1998 - 1999)

Assistant Professor of Economics and of Labor and Industrial Relations, University of Illinois at Urbana-Champaign (1995 - 2001)

## HONORS AND FELLOWSHIPS

John T. Dunlop Outstanding Young Scholar Award, Industrial Relations Research Association (Now Labor and Employment Relations Association), 2004.

Outstanding Teaching Award (small class), University of Illinois Economics Graduate Student Association, 2001-2002.

Faculty Teaching Excellence Award, University of Illinois Institute of Labor and Industrial Relations, 2000.

Outstanding Teaching Award (small class), University of Illinois Economics Graduate Student Association, 2000-2001.

Albert Rees Prize for Best Dissertation in Labor Economics from Princeton in the Last Six Years (awarded every two years), 1999.

University of Illinois College of Commerce and Business Administration Award for Excellence in Research (first annual Assistant Professor award), 1999.

University of Illinois list of teachers ranked excellent by their students, 1997, 1998, 1999, 2000, 2002.

Princeton University Industrial Relations Section Fellowship, September 1991-May 1995.

United States Department of Education Jacob K. Javits Fellowship, September 1991-May 1995.

Massachusetts William Field Alumni Scholar, 1991.

Phi Beta Kappa, 1990.

Valedictorian, Hopkins Academy, Hadley Massachusetts, 1987.

Paul Brown Senior Baseball Award, Hopkins Academy, Hadley Massachusetts, 1987.

Massachusetts High School State Baseball Champions, 1985. Third base, Hopkins Academy.

## BOOKS

*Pay: Why People Earn What They Earn and What You Can Do Now to Make More*, Cambridge University Press September 2012.

*Managing Layoffs: Why Firms Fire Workers and How it Affects the Bottom Line*, Cambridge University Press, under contract.

*The Economics of Executive Compensation*, Volume II, (co-editor with Kevin J. Murphy), Edward Elgar Publishing Limited, Cheltenham, England, 1999.

*The Economics of Executive Compensation*, Volume I, (co-editor with Kevin J. Murphy), Edward Elgar Publishing Limited, Cheltenham, England, 1999.

**BOOKS (continued)**

*Economic Institutions and The Demand and Supply of Labor: The Collected Essays of Orley Ashenfelter*, Volume III, editor, Edward Elgar Publishing Limited, Cheltenham, England, 1997.

*Education, Training and Discrimination: The Collected Essays of Orley Ashenfelter*, Volume II, editor, Edward Elgar Publishing Limited, Cheltenham, England, 1997.

*Employment, Labor Union, and Wages: The Collected Essays of Orley Ashenfelter*, Volume I, editor, Edward Elgar Publishing Limited, Cheltenham, England, 1997.

*Labor Economics, Volume IV: Labor Market Discrimination, Labor Mobility and Compensating Wage Differentials*, (co-editor with Orley Ashenfelter), Edward Elgar Publishing Limited, Cheltenham, England, 1995.

*Labor Economics, Volume III: Unemployment, Trade Unions and Dispute Resolution*, (co-editor with Orley Ashenfelter), Edward Elgar Publishing Limited, Cheltenham, England, 1995.

*Labor Economics, Volume II: Employment, Wages and Education*, (co-editor with Orley Ashenfelter), Edward Elgar Publishing Limited, Cheltenham, England, 1995.

*Labor Economics, Volume I: Labor Supply and Labor Demand*, (co-editor with Orley Ashenfelter), Edward Elgar Publishing Limited, Cheltenham, England, 1995.

**PUBLISHED AND FORTHCOMING PAPERS**

“Data Improvement and Labor Economics,” *Journal of Labor Economics*, 31(2), Part 2, April 2013, S1-S16.

“Adverse Selection and Incentives in an Early Retirement Incentive Program,” (with Kenneth Whelan, Ronald Ehrenberg and Ronald Seeber), *Research in Labor Economics*, Volume 36, 159-190, 2012.

“Job Loss and Effects of Firms and Workers,” (with Michael Strain and Doug Webber), in Cary Cooper, Alankrita Pandey and James Quick eds. *Downsizing: Is Less Still More?*, Cambridge University Press, 2012.

“New Data for Answering Old Questions Regarding Employee Stock Options,” (with Craig Olson), in *Labor and The New Economy*, Katharine G. Abraham, James R. Spletzer and Michael Harper, editors, National Bureau of Economic Research, 2010.

“Executive Pay and Firm Performance: Methodological Considerations and Future Directions,” (with Beth Florin and Douglas Webber), *Research in Personnel and Human Resources Management*, 2010.

“The Geography of Giving: The Effect of Corporate Headquarters on Local Charities,” (with David Card and Enrico Moretti), *Journal of Public Economics*, April 2010, 94(3), 222 -234.

“CEO Pay for Performance Heterogeneity: Examples Using Quantile Regression,” (with Clayton Reck and Regina Madalozzo), *Financial Review*, February 2010, 1-19.



**PUBLISHED AND FORTHCOMING PAPERS (continued)**

“Job Loss and the Fraying of the Implicit Employment Contract,” *Journal of Economic Perspectives*, 23(4), Fall 2009, 69-93.

“The Changing Relationship Between Job Loss Announcements and Stock Prices: 1970-1999,” (with Henry Farber), *Labour Economics*, 16(1), January 2009, 1-11.

“Layoffs in Large U.S. Firms from the Perspective of Senior Management,” *Research in Personnel and Human Resources Management*, volume 25, 2006.

“Assessing the Impact of Job Loss on Workers and Firms,” (with Kristin Butcher), *Chicago Fed Letter*, Federal Reserve Bank of Chicago, April 2006.

“Mass Layoffs and Management Turnover,” (with Sherrilyn Billger), *Industrial Relations*, 44(3), July 2005.

“Bringing Together Policymakers, Researchers, and Practitioners to Discuss Job Loss,” (with Kristin Butcher), *Economic Perspectives*, Federal Reserve Bank of Chicago, 2<sup>nd</sup> Quarter, 2005.

“Does Managed Care Change the Management of Nonprofit Hospitals? Evidence from the Executive Labor Market,” (with Marianne Bertrand and Richard Arnould), *Industrial and Labor Relations Review*, 58(3), April 2005.

“Job Loss: Causes, Consequences, and Policy Responses,” (with Kristin F. Butcher), *Chicago Fed Letter*, Federal Reserve Bank of Chicago, Number 207, October 2004.

“Managerial Pay in Nonprofit and For-Profit Organizations,” in *Improving Leadership in Nonprofit Organizations*, Sarah Smith-Orr and Ron Riggio, editors, Jossey-Bass, 2004, 76 – 101.

“Managerial Pay and Governance in American Nonprofits,” *Industrial Relations*, 41(3), July 2002, 377-406.

“When Unions ‘Mattered’: Assessing the Impact of Strikes on Financial Markets: 1925-1937,” (with John DiNardo), *Industrial and Labor Relations Review*, 55(2), January 2002, 219 - 233.

“Quantile Regression,” (with Roger Koenker), *The Journal of Economic Perspectives*, 15(4), Fall 2001, 143-156.

“The Gender Gap in Top Corporate Jobs,” (with Marianne Bertrand), *Industrial and Labor Relations Review*, 55(1), October 2001, 3-21.

“Individual Heterogeneity in the Returns to Schooling: Instrumental Variables Quantile Regression using Twins Data,” (with Omar Arias and Walter Sosa), *Empirical Economics*, 26(1), March 2001, 7-40. Reprinted in *Economic Applications of Quantile Regression*, Bernd Fitzenberger, Roger Koenker, and Jose A. F. Machado, Editors, Physica-Verlag.

“Compensation in Nonprofit Organizations,” *Research in Personnel and Human Resources Management*, edited by Gerald R. Ferris, Elsevier Science, Volume 19, 2000, 243-294.

**PUBLISHED AND FORTHCOMING PAPERS (continued)**

“The Timeliness of Performance Information in Determining Executive Compensation,” (with Paul Oyer), *Journal of Corporate Finance*, 5(4), December 1999, 303-321.

“Capital Markets and Job Loss: Evidence from North America,” (with Henry Farber), *Wirtschafts Politische Blatter*, 46(6), December 1999, 573-577.

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“Introduction,” in *Employment, Labor Unions and Wages: The Collected Essays of Orley Ashenfelter*, Volume I, Edward Elgar Publishing Limited, Cheltenham, England, ix – xxii.

“Seniority and Monopsony in the Academic Labor Market: Comment,” *The American Economic Review*, 85(3), June 1995, 654-657.

**WORKING PAPERS**

“Employees’ Choice of Method of Pay,” (with Craig Olson), February 2012.

“Executive Compensation in American Unions,” (with Felice Klein), January 2012.

“Senior HR Leaders in the “Top 5”: Evidence on Pay, Relative Pay, and Performance Using Data from 1,500 Firms Over a Decade,” (with Matthew Allen and John Haggerty), January 2008.

“The Value of Stock Options to Non-Executive Employees,” (with Craig Olson), March 2007.

“Are Formal Corporate News Announcements Still Newsworthy?: Evidence from 30 Years of US Data on Earnings, Splits, and Dividends” (with Farzad Mashayekhi), July 2006.

## **WORKING PAPERS (continued)**

“The Gender Pay Gap for Managers in Nonprofits,” January 2002.

“Unions and the Labor Market for Managers,” (with John DiNardo, and Jorn-Steffen Pischke), August 2000.

“A Simple Empirical Model of Welfare or Work Incentives for Single Mothers,” June 1995.

## **BOOK REVIEWS**

Review of *Personnel Economics in Imperfect Labour Markets*, by Pietro Garibaldi, Oxford University Press, *Journal of Economic Literature*, December 2007.

Review of *Pay Without Performance: The Unfulfilled Promise of Executive Compensation*, by Lucian Bebchuk and Jesse Fried, Harvard University Press, *Industrial and Labor Relations Review*, 59(4), July 2006, 672-674.

## **OTHER WORK IN PROGRESS**

“The Pay Gap and the Total Compensation Gap by Disability Status,” (with Xin Jin and Linda Barrington)

“Pay and Performance for University Presidents,” (with Orley Ashenfelter, Sherrilyn Billger and Ronald Ehrenberg)

“The Illinois Historical Salary Census,” (with David Card)

“Estimating the Expected Cost of Employee Stock Options” (with Craig Olson)

“Job Matching and Employment Duration” (with Todd Elder)

“The Night Shift” (with Darren Lubotsky and Douglas Webber)

“Quantile Regression for Management”

“Sleepy Traders and Stock Prices” (with Lawrence DeBrock and Joe Price)

## **RESEARCH REPORTS**

*The 2011 U.S. Top Executive Compensation Report*, (with Judit Torok), The Conference Board, 2011.

*U.S. Salary Increase Budgets for 2012*, (with Judit Torok), The Conference Board, 2011.

*The 2010 U.S. Top Executive Compensation Report*, (with Judit Torok), The Conference Board, 2010.

*Top Executive Compensation in 2009*, (with Judit Torok), The Conference Board, 2010.

**RESEARCH REPORTS (continued)**

*Directors' Compensation and Board Practices in 2009*, (with Matteo Tonello and Judit Torok), The Conference Board, 2010.

*Top Executive Compensation 2009 – Key Findings*, (with Judit Torok), The Conference Board, December 2009.

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*2007 Report on Top Executive Compensation—Key Findings*, (with Linda Barrington and Lisa Hunter), The Conference Board, 2007.

*Layoffs, Top Executive Pay and Firm Performance*, United States Department of Labor, 1996

**COLUMNS**

“Pay in Nonprofits,” *Workspan*, April 2013, 12-13.

“Valuing Employee Stock Options,” *Workspan*, March 2013, 10-11.

“Pay and Relative Income Within Couples,” *Workspan*, February 2013, 12-13.

“Presidential Pay,” *Workspan*, January 2013, 12-13.

“Top Athlete Pay,” *Workspan*, December 2012, 12-13.

“Economic Effects of the Minimum Wage,” *Workspan*, November 2012, 12-13.

“How The Olympics Remind Us About Compensation,” *Workspan*, October 2012, 12-13.

“CEOs Off the Clock,” *Workspan*, September 2012, 13-14.

“Vacation as Compensation,” *Workspan*, August 2012, 13-14.

“Paying Professors” *Workspan*, July 2012, 12-13.

“Does Graduating in a Bad Economy Penalize Your Pay for Life?” *Workspan*, June 2012, 13-14.

**COLUMNS (continued)**

- “Governance and Executive Pay in Nonprofits?” *Workspan*, May 2012, 13-14.
- “Why Do We Tip?” *Workspan*, April 2012, 12-13.
- “Massive Kinked Bonuses,” *Workspan*, March 2012, 12-13.
- “Go Big: The Firm-Size Pay (and Pay-Mix) Effect,” *Workspan*, February 2012, 12-13.
- “Nothing Lasts Forever: A Different Way to Structure Severance,” *Workspan*, January 2012, 12-13.
- “Is There Deadweight Loss in Holiday Rewards?” *Workspan*, December 2011, 11-12.
- “Pay System Gender Neutrality,” *Workspan*, November 2011, 11-12.
- “Does More Education Cause Higher Earnings,” *Workspan*, October 2011, 12-13.
- “Say On Pay and Compensation Design,” *Workspan*, September 2011, 10-11.
- “Lessons in Pay Design from the Farm,” *Workspan*, August 2011, 11-12.
- “Linking Compensation and Job Losses During a Recession,” *Workspan*, July 2011, 12-13.
- “Does That Pay Practice Really Have Any Impact?” *Workspan*, June 2011, 12-13.
- “Pay Ratios and Inequality,” *Workspan*, May 2011, 14-16.
- “Pay Secrecy and Relative Pay,” *Workspan*, April 2011, 10-11.
- “Motivating with Efficiency Wages and Delayed Payments,” *Workspan*, March 2011, 10-11.
- “The Relationship Between Company Size and CEO Pay,” *Workspan*, February 2011, 10-11.
- “The Disconnect Between Employer Cost and Employee Value,” *Workspan*, January 2011, 10-11.

## **REFEREE AND EDITORIAL SERVICE**

(Advisory Board, Compensation and Benefits Review, 2012 – present)

(Advisory Board, Journal of People and Organizational Effectiveness, 2012 – present)

(Associate Editor, Journal of Labor Economics, 2008 – 2012)

(Associate Editor, Labour Economics, 2008 – present)

(Associate Editor, Economics Bulletin, 2005 – July 2010)

(Editorial Board, Industrial and Labor Relations Review, 2006 – present)

Academy of Management Journal, Advances in the Economics of Sport, American Economic Journal: Applied Economics, American Economic Review, British Journal of Industrial Relations, Economic Theory, Eastern Economic Review, Economic Inquiry, Economic Journal, Economics Bulletin, Economics of Education Review, Economics and Politics, Economics Letters, Education and Finance Policy, Empirical Economics, Explorations in Economic History, Financial Review, Industrial and Labor Relations Review, Industrial Relations, International Economic Review, International Journal of Manpower, International Journal of Organizational Analysis, International Migration Review, International Review of Economics and Finance, Journal of Business, Journal of Business and Economic Statistics, Journal of Corporate Finance, Journal of Human Resources, Journal of Economic Psychology, Journal of Finance, Journal of Industrial Economics, Journal of Labor Economics, Journal of Law Economics and Organization, Journal of Political Economy, Journal of Public Economics, Journal of Urban Economics, Labour Economics, The Manchester Review, Nonprofit and Voluntary Sector Quarterly, Nonprofit Management and Leadership, Quarterly Journal of Business and Economics, Quarterly Journal of Economics, Quarterly Journal of Economics and Finance, Review of Economics and Statistics

National Science Foundation, Social Science and Humanities Research Council, United States Census Bureau, Various Publishers

**GRANTS**

United States Department of Education, National Institute on Disability and Rehabilitation Research (NIDRR), Rehabilitation Research Training Center (RRTC) on Employer Practices Related to Employment Outcomes for Individuals with Disabilities (co-PI, with Susanne Bruyere and Linda Barrington), \$4 million, 2010 – 2015.

Compensation in Asia, (CAHRS), 2011 – 2012.

International Compensation, (CAHRS), 2010- 2011.

Costs of Compensation versus Value to the Organization (CAHRS), 2009 – 2010.

Why Managers Fire Workers and How it Affects the Bottom Line (CAHRS), 2008-2009.

Managing Layoffs, Cornell Center for Human Resource Management (CAHRS), 2007-2008.

Stock Options, (with Craig Olson), Cornell Center for Human Resource Management (CAHRS), 2006-2007.

When and Why Do Firms Make Layoffs?, Alfred P. Sloan Foundation, 2001 - 2003.

The Illinois Historical Salary Study, (with David Card), University of Illinois Campus Research Board, 2003.

What Happens to Firms When Workers are Let Go?, Illinois Center for Human Resource Management, 2001-2002.

Stock Options for Employees in Large U.S. Firms, Illinois Center for Human Resource Management, (with Craig Olson), 2001-2002.

Studies in Executive Compensation, University of Illinois Campus Research Board, 2001-2002.

What Drives Nonprofits? Evidence from Managerial Pay, Performance, and Market Competition in Nonprofit Hospitals, National Bureau of Economic Research, (with Richard Arnould, and Marianne Bertrand), 1999-2000.

Computation Problems in Applied Economics, Intel Corporation, (with Lawrence DeBrock and Roger Koenker), 1998.

Determinants of Managerial Compensation in American Charities, American Compensation Association, 1997-1998.

Unions and Managerial Pay, American Compensation Association, (with John DiNardo and Jorn-Steffen Pischke), 1997-1998.

How to Make Incentive Pay Programs More Successful: Linking Sales Compensation Plans to Firm Performance, Center for Human Resource Management, University of Illinois, (with Paul Oyer), 1997-1998.

Executive Compensation, Firm Layoffs, and Firm Performance, United States Department of Labor, 1996.



## SEMINARS AND PRESENTATIONS

University of Arizona, Brigham Young University, University of California at Berkeley, University of California at Santa Barbara, Case Western Reserve University, University of Chicago, Claremont-McKenna College, Cornell University, Harvard University, University of Illinois at Chicago, University of Illinois at Urbana-Champaign, Illinois State University, Kansas State University, University of Konstanz, Marquette University, Massachusetts Institute of Technology, McGill University, University of Michigan, Michigan State University, University of Missouri, New York University, Northwestern University, The Ohio State University, Princeton University, University of Pennsylvania, Indiana University – Purdue University at Indianapolis, Queen's University, University of Rochester, Stanford University, Texas A&M University, University of Wisconsin at Madison, University of Wisconsin at Milwaukee, Yale University

American Economic Association, Econometric Society, European Society of Labour Economists, Industrial Relations Research Association, Labor and Employment Relations Association, National Bureau of Economic Research, Society of Labor Economists, WorldatWork

## TEACHING

Ph.D.Students advised, department, year of degree, and initial placement (\* chair of committee):

Pablo Acosta\*, Economics, 2006, World Bank  
 Ji-Young Ahn, ILIR, Illinois, 2009, Ehwa Women's College, South Korea  
 Carole Amidon, Economics, 2002, ERS Group, Florida  
 Vic Anand, Accounting, 2013 (expected), Emory University  
 Michelle Arthur, ILIR, 2000, Purdue University  
 David Balan\*, Economics, 2000, Federal Trade Commission  
 Sherrilyn Billger\*, Economics, 2000, Union College  
 Paul Byrne, Economics, 2003, Wabash College  
 John Deke\*, Economics, 2000, Mathematica Policy Research, Princeton NJ  
 Emre Ekinci, Economics, 2012, Universidad Carlos III  
 Todd Fister\*, ILIR, 2003, Kimberly-Clark, Atlanta  
 R. Kaj Gittings, Economics, 2009 expected, Louisiana State University  
 Lynn Gottschalk, Economics, 2005 Federal Trade Commission  
 Weishi (Grace) Gu, Economics (current)  
 Juliana Guimaraes\*, Economics, 2001, Universidade Nova de Lisboa, Portugal  
 John Haggerty, HR Studies, 2010, Cornell University  
 Dan Hanner, Economics, 2005, Federal Trade Commission  
 Jeffrey Hemmeter, Economics, 2004, University of California, Davis  
 Xin Jin, Economics (current)  
 Kandice Kapinos, ILIR, 2007, St. Olaf College  
 David Kaplan, ILIR, 2000, James Madison University  
 GiSeung Kim, Economics, 2001, LG Economics Research Group, Korea.  
 Elizabeth Kiss, Ag. Economics, 2000, Purdue University  
 Felice Klein\*, HR Studies, 2012, Michigan State University  
 Nolan Kopkin, Economics (2013), University of Wisconsin, Milwaukee.  
 Gregory Kordas, Economics, 2000, University of Pennsylvania



**TEACHING (continued)**

Fidan Kurtulus\*, Economics, 2007, University of Massachusetts at Amherst  
 Regina Madalozzo\*, Economics, 2002, Brazilian Institute of Capital Markets  
 Farzad Mashayekhi\*, Economics, 2003, Moody's K M V, San Francisco  
 Catherine McClean, Economics, 2012, University of Pennsylvania  
 Daniel Morillo, Economics, 2000, PanAgora Asset Management, Boston  
 Ben Ost, Economics, 2011, University of Illinois at Chicago  
 Heather Radach, Economics, 2001, Lexecon, Chicago  
 Clayton Reck\*, Economics, 2004, ERS Group, Florida.  
 Eduardo Ribeiro, Economics, 1995, Universidade Federal do Rio Grande do Sul, Brazil  
 Laura Ripani\*, Economics, 2004, World Bank.  
 Patricia Simpson, ILIR, 1997, Loyola University, Chicago  
 Michael Strain\*, Economics, 2012, American Enterprise Institute  
 Mary Taber, ILIR, 1999, Skidmore College  
 Maria Tannuri, Economics, 2000, Universidade de Brasilia, Brazil  
 Rosemary Walker, Economics, 2000, Wabash College  
 Ying Wang, Economics (current)  
 Douglas Webber, Economics, 2012, Temple University  
 Leigh Wedenoja, Economics (current)  
 Olga Yakusheva\*, Economics, 2005, Marquette University  
 Chen Zhao, Economics, 2013, Analysis Group

Courses Taught:

PAY (undergraduate) at Cornell  
 Managing Compensation (MILR) at Cornell  
 Executive Compensation (MILR) at Cornell  
 Job Loss (Undergraduate) at Cornell  
 Freshman Colloquium (Undergraduate) at Cornell  
 Finance for Human Resources (M.H.R.I.R.) at Illinois and (MILR) at Cornell  
 Labor Economics for Managers (M.H.R.I.R.) at Illinois  
 Managerial Economics (Masters of Science in International Finance) at Illinois  
 Labor Economics I (Ph.D.) and Labor Economics II (Ph.D.) at Illinois  
 Applied Econometrics (Masters of Science in Policy Economics) at Illinois  
 Microeconomic Principles (Undergraduate) at Illinois  
 Labor Problems (Undergraduate) at Illinois  
 Labor Economics (Undergraduate) at Illinois and Princeton

**UNIVERSITY SERVICE**

2012 – 2013 (Cornell)

Donald C. Opatrny '74 Chair of the Department of Economics  
 Director, Institute for Compensation Studies (ICS)  
 Member, Search Committee for the Dean of the College of Arts and Sciences  
 Member, Department of Economics Recruiting Committee  
 Member, Cornell University Council on Mental Health and Welfare

2011 – 2012 (Cornell)

Director, Institute for Compensation Studies (ICS)  
 Chair, Recruiting Committee, Department of Economics  
 Associate Chair, Department of Economics  
 Director of Research and Board Member, Center for Advanced HR Studies (CAHRS)  
 Member, Cornell University Council on Mental Health and Welfare

2010 – 2011 (Cornell):

Chair, Department of Labor Economics  
 Director, Institute for Compensation Studies (ICS)  
 Chair, Recruiting Committee, Department of Labor Economics  
 Recruiting Committee, Department of Policy Analysis and Management  
 Recruiting Committee, Department of Human Resource Studies  
 Director of Research and Board Member, Center for Advanced HR Studies (CAHRS)  
 Member, Cornell University Council on Mental Health and Welfare  
 Member, ILR Admissions Committee

2009 – 2010 (Cornell):

Provost's Budget Model Task Force  
 Campus Task Group on Student Services  
 Chair, ILR Task Group on Student Services  
 Institute for the Advancement of Economics at Cornell  
 Director, Compensation Research Initiative (CRI)  
 Labor Economics Recruiting Committee  
 Director of Research, Center for Advanced Human Resource Studies (CAHRS)  
 Center for Advanced Human Resource Studies (CAHRS) Board

2008 – 2009 (Cornell):

Cornell University Financial Policy Committee  
 Institute for the Advancement of Economics at Cornell  
 Director of Research, Center for Advanced Human Resources Studies (CAHRS)  
 Undergraduate Committee, ILR School  
 Center for Advanced Human Resources Studies (CAHRS) Board

2007-2008 (Cornell):

Chair, Cornell University Financial Policies Committee  
 Economics Field Review Committee  
 Director of Research, Center for Advanced Human Resource Studies (CAHRS)  
 Review Panel for Cornell Institute for the Social Sciences  
 Center for Advanced Human Resource Studies (CAHRS) Board  
 Undergraduate Committee, ILR School

**UNIVERSITY SERVICE (continued)**

2006 – 2007 (Cornell):

Interim-Chair, Human Resource Studies Department, ILR School Cornell (Fall)  
 Cornell University Financial Policies Committee (2006 – 2009), Co-Chair (2006 - 2007)  
 Labor Economics Search Committee  
 Review Panel for Cornell Institute for the Social Sciences  
 Center for Advanced Human Resource Studies (CAHRS) Board  
 Undergraduate Committee, ILR School

2005 – 2006 (Cornell):

Campus Financial Policies Committee (Spring)  
 Committee on Faculty Recruitment and Retention in the Social Sciences  
 ILR Committee to Evaluate the Math Requirement  
 Departmental Tenure Review Committee  
 Center for Advanced Human Resource Studies (CAHRS) Board

2004 – 2005 (Illinois):

ILIR On-Campus Committee, Chair  
 ILIR Executive Committee  
 University of Illinois Center for Human Resource Management, Co-Director

2003 – 2004 (Illinois):

Economics Junior Recruiting Committee, Chair  
 Economics Advisory Committee to the Head  
 ILIR On-Campus Committee, Chair  
 University of Illinois Executive Board of Center for Human Resource Management

2002 – 2003: (Illinois) On sabbatical (fall)

ILIR Executive Committee  
 Economics Search Committee for new Head of Department  
 University of Illinois Executive Board of Center for Human Resource Management  
 Campus Admissions Committee  
 College of Business Educational Policy Committee

2001 – 2002 (Illinois):

ILIR Executive Committee  
 ILIR Ph.D. Advisory Committee  
 Economics/LIR Faculty Search Committee  
 Economics Capricious Grading Committee  
 Economics Labor Seminar  
 College of Commerce Educational Policy Committee  
 College of Commerce Teaching Advancement Board  
 Campus Admissions Committee  
 University of Illinois Executive Board of Center for Human Resource Management

2000 – 2001 (Illinois):

ILIR Executive Committee  
 ILIR On-Campus Committee  
 Economics/ILIR Faculty Search Committee  
 Economics Advisory Committee to the Head

## **UNIVERSITY SERVICE (continued)**

1999 – 2000 (Illinois):

- ILIR Ph.D. Advisory Committee
- ILIR Speaker-Scholars Committee
- Economics Advisory Committee to the Head
- Economics Graduate Admissions Committee
- Economics Labor Seminar

1998 – 1999: (On Leave all year at Princeton)

- Economics/ILIR Faculty Search Committee

1997 – 1998 (Illinois):

- ILIR Speaker-Scholars Committee
- ILIR Long Distance Learning Committee
- ILIR Admissions and Financial Aid Committee
- Economics Faculty Search Committee
- Economics Labor Seminar

1996 – 1997 (Illinois):

- ILIR Ph.D. Advisory Committee
- ILIR Speaker-Scholars Committee
- ILIR On-Campus Committee
- ILIR Computer Classroom Committee
- Economics Advisory Committee to the Head
- Economics Graduate Programs Committee
- Economics Labor Seminar

1995 – 1996 (Illinois):

- ILIR On Campus Committee, Speaker-Scholars Committee, Computer Classroom Committee

## **PROFESSIONAL SOCIETY SERVICE**

Member, Board of Directors of the Society of Certified Professionals, WorldatWork, 2012 -

Member, Board of Directors, WorldatWork, 2009 - 2011

Board Member, WorldatWork Executive Compensation Advisory Board, 2007 - 2009

Member, Strategic Planning Committee, National Academy of Social Insurance, 2007-2008

Member, Awards Committee, Labor and Employment Relations Association, 2006 – 2010

## **CONFERENCE ORGANIZATION**

Emerging Scholars In Compensation Conference, Spring 2013, Ithaca NY (with Linda Barrington)

21<sup>st</sup> Century Human Resource Management Practices and Their Effects on Firms and Workers:  
ILIR Alumni Professorship Symposium, Institute of Labor & Industrial Relations,  
University of Illinois, November 11-12, 2005 (with Craig Olson and Kathryn Shaw)

Job Loss: Causes, Consequences, and Policy Responses, Federal Reserve Bank of Chicago,  
November 18-19, 2004 (with Kristin Butcher and Daniel Sullivan)

## APPENDIX B

### Materials Considered Include The Following:

#### Papers or Books

Adams, J. Stacy, 1965, "Inequity in Social Exchange," in L. Berkowitz, ed., *Advances in Experimental Social Psychology*, 2, 267 – 299.

Card, David, 1999, "The Causal Effect of Education on Earnings," in Orley Ashenfelter and David Card, Eds., *Handbook of Labor Economics*. Volume #a, Elsevier, 1801 – 1863.

Card, David, 2001, "Estimating the Return to Schooling: Progress and Some Persistent Econometrics Problems," *Econometrica*, 69, 1127 – 1160.

Card, David, Alexandre Mas, Enrico Moretti, and Emmanuel Saez, 2012, "Inequality at Work: The Effect of Peer Salaries on Job Satisfaction," *The American Economic Review*, 102(6), 2981-3003.

Cardinal, Ken and Beth Florin, 2012, *Handbook for Conducting Compensation and Benefits Surveys*, WorldatWork Press.

Hallock, Kevin F., 2012, *Pay: Why People Earn What They Earn and What You Can Do Now to Make More*, Cambridge University Press.

Hallock, Kevin F. and Judit P. Torok, 2010, *The 2010 U.S. Top Executive Pay Report*, The Conference Board, New York, N.Y.

Hungerford, Thomas and Gary Solon, 1987, "Sheepskin Effects in the Return to Education," *Review of Economics and Statistics*, 69(1), February, 175 – 177.

Levine, David I., 1993, "Fairness, Markets, and Ability to Pay: Evidence from Compensation Executives," *The American Economic Review*, 83(5), December, 1241-1259.

Lazear, Edward P. and Rosen, Sherwin. 1986, "Rank-Order Tournaments as Optimum Labor Contracts". *Journal of Political Economy*, 89(5), October 1981, 841-864.

Milkovich, George T. and Philip H. Anderson, 1972, "Management Compensation and Secrecy Policies," *Personnel Psychology*, 25, 293-302.

Milkovich, George T., Gerry M. Newman and Barry Gerhart, 2011, *Compensation*, 10<sup>th</sup> Edition, McGraw-Hill Irwin.

Milkovich, George T., Gerry M. Newman and Barry Gerhart, 2014, *Compensation*, 11<sup>th</sup> Edition, McGraw-Hill Irwin.

Rosen, Sherwin S., 1986, “The Theory of Equalizing Differences,” in Orley Ashenfelter and Richard Layard, Eds., *The Handbook of Labor Economics*, North Holland, 641 – 592.

Spence, Michael, 1973, “Job Market Signaling,” *Quarterly Journal of Economics*, 87(3), August, 355-374.

Weiss, Andrew, 1995, “Human Capital vs. Signaling Explanations for Wages,” *Journal of Economic Perspectives*, 9(4), 133 – 154.

### **Data Sources and Other**

I was provided access to all deposition transcripts and exhibits in the case. The following are among the materials I considered:

2009 Croner Animation and Visual Effects Survey, January 8, 2009, PIX00001263, exhibit 119.

Document, HR Global Staffing, Manage Offer Module, Develop External Offer, document Version 1.3, February 13, 2009, 76579DOC005963, exhibit 398.8.

Document from Intuit, Talent Acquisition Hiring Plan, INTUIT\_007866, exhibit 1107.2.

Document, 2009 Salary Increase & LTI ‘Talking Points’, PIX00083585, exhibit, 1307.3

Declaration of Ms. Donna Morris of Adobe Systems, September 13, 2011.

Declaration of Ms. Michelle Maupin, January 17, 2013.

Declaration of Mr. Danny McKell, Intel, September 13, 2011.

Declaration of Ms. Donna Morris, September 13, 2011.

Deposition of Mr. David Alvarez, Apple, March 5, 2013

Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013.

Deposition of Mr. Darrin Baja, Apple, March 1, 2013.

Deposition of Mr. Richard Bechtel, Apple, March 7, 2013.

Deposition of Dr. Shona Brown, January 30, 2013.

Deposition of Mr. Patrick Burke, Apple, February 26, 2013.

Deposition of Mr. Steven Burmeister, Apple, March 15, 2013.

Deposition of Dr. Ed Catmull, January 24, 2013.

Deposition of Ms. Michelene Chau, Lucasfilm, February 21, 2013.

Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013.

Deposition of Ms. Sharon Coker, LucasFilm, November 1, 2012.

Deposition of Ms. Deborah Conrad, Intel, November 21, 2012.

Deposition of Mr. Alan Eustace, February 27, 2013.

Deposition of Mr. Chris Galy, Intuit, March 20, 2013.

Deposition of Mr. Randall Goodwin, Intel, March 15, 2013.

Deposition of Mr. Digby Horner, Adobe, March 1, 2013.

Deposition of Ms. Renee James, Intel, March 22, 2013.

Deposition of Ms. Danielle Lambert, Apple, October 2, 2013.

Deposition of Mr. Alex Lintner, Intuit, March 25, 2013.

Deposition of Michelle Maupin, February 12, 2013.

Deposition of Ms. Lori McAdams, August 2, 2012.

Deposition of Mr. Daniel McKell, Intel, March 20, 2013.

Deposition of Ms. Jan van der Voort, February 5, 2013.

Deposition of Ms. Donna Morris, August 21, 2012.

Deposition of Ms. Patricia Murray, Intel, February 14, 2013.

Deposition of Mr. Shantanu Narayen, Adobe, February 28, 2013.

Deposition of Mr. Ron Okamoto, Apple, February 27, 2013.

Deposition of Mr. Paul Otellini, Intel, January 29, 2013.

Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013.

Deposition of Mr. Brad Smith, Intuit, February 27, 2013.

Deposition of Mr. Mason Stubblefield, Intuit, March 29, 2013.



Deposition of Mr. Jeffrey Vijungco, Adobe, October 5, 2012.

Deposition of Mr. Frank Wagner, March 7, 2013.

Deposition of Ms. Sherry Whiteley, Intuit, March 14, 2013.

Email from Ms. Jan van der Voort, July 9, 2007, LUCAS00060705, exhibit 728.1

Email from Ms. Michelle Maupin to Jan van der Voort, May 8, 2008, LUCAS00201069, exhibit 727.3.

Email from Ms. Michelle Maupin, November 4, 2010, LUCAS00198130, exhibit 729.1.

Email from Ms. Donna Morris, Adobe, March 4, 2007, ADOBE\_005661, exhibit 1158.

Email from Ms. Donna Morris, Adobe, June 5, 2010, ADOBE\_019278, exhibit 1159.

Email of Ms. Donna Morris, Adobe, June 13, 2011, ADOBE\_9652, exhibit 1160.

Email of Ms. Donna Morris, Adobe, January 18, 2008, ADOBE\_009425, exhibit, 2501.1.

Email of Mr. Shantanu Narayen, Adobe, June 14, 2011, ADOBE\_9652, exhibit 1160.

Email from Ms. Vanessa Hall, February 14, 2011, LUCAS00199905-6.

Email from Arnnon Geshuri on Saturday March 15, 2008GOOGLE-High\_Tech-00379327, exhibit 614.

Email from Ms. Lori McAdams on November 17, 2006, LUCAS00184664, Exhibit 122.

Email from Anuj Chandarana, Google, December 2, 2010, exhibit 1629.

Email from Tiffany Wu, September 7, 2007, Goog-High-Tech-00473658, exhibit 1613.

Email from Mr. Chris Galy, Intuit, March 3, 2010, INTUIT\_039790, exhibit 2142.1.

Email from Danny McKell, Intel, February 2005, 76657DOC004599, exhibit 2033.

Email from Mr. Ron Okamoto, Apple, September 17, 2010, 231APPLE099371, exhibit 1130.1.

Email from Mr. Paul Otellini, Intel, January 22, 2010, 76616DOC012164, exhibit 478.1.

Email from Ms. Jocelyn Vosburch, Adobe, October 25, 2010, ADOBE\_011976-7, exhibit 1250.1-2.

Email from Mr. Odgen Reid, Intel, April 5, 2005, 76657DOC019264, exhibit, 2035.4.

Email from Mr. Rob York, Apple, on December 17, 2010, 231APPLE039427, exhibit 1376.2.

Google High Tech 00336879 from Deposition of Dr. Shona Brown, January 30, 2013, referencing exhibit 621.

Great Places to Work website: <http://www.greatplacetowork.com/>.

Powerpoint, "Recruiting and Human Resources Update," Board of Directors Meeting, October 19, 2007, LUCAS00013707, exhibit 690.3.

Powerpoint, NPG Human Resources Job Leveling & Pay Equity Review, June 6, 2002, 76583DOC00388, exhibit 392.3.

Powerpoint, NPG Human Resources Job Leveling & Pay Equity Review, June 6, 2002, 76583DOC00388, exhibit 392.5.

Powerpoint on pay design, LUCAS 00188717, exhibit 715.10.

Powerpoint on pay design, LUCAS 00188763, exhibit 715.56.

Powerpoint, Comp Basics for Recruiters, GOOG-HIH-TECH-00036292, exhibit 1606.6.

Powerpoint, Compensation Components Setting a Base Salary, GOOG-HIGH-TECH-00036302, exhibit, 16016.16.

Powerpoint, Intel Base Pay Comparison Report, Support Overview, WW04 2011, 765825DOC001211, exhibit 400.31.

Powerpoint, Salary Planning 2007, Presentation to Engineering Directors, 29 October 2007, exhibit, 1609.11.

Powerpoint called FY11 Preliminary Pay lines development update, Intel, May 5, 2010, 76582DOC000004\_000004, exhibit 399.4.

Powerpoint, Candidate Generation, Intuit, December 12, 2006, INTUIT\_034255, exhibit 2135.25.

Powerpoint, FY '09 New Hire Equity Guidelines, Intuit, INTUIT\_039756, exhibit 2140.4.

Powerpoint, Key Components of Intuit's Total Rewards Portfolio, Intuit, January 7, 2005, INTUIT\_52803, exhibit 1760.5.

Powerpoint, Leveraging Compensation and Performance, Intuit, January 7, 2005, exhibit 1761.19.

Powerpoint, INTUIT Total Rewards & Pay Decisions Toolkit, Intuit, May 2005, INTUIT\_043560, exhibit 2739.13.

Powerpoint, Focal Decisions 2005, Communications Session for Senior Managers, June 2005, Intuit, INTUIT\_052841, exhibit 2740.16.

Powerpoint, Lucasfilm Ltd. Compensation Project Status Executive Review, Lucasfilm, December 7, 2006, LUCAS00027982, exhibit 359.4.

Powerpoint, Global Compensation Project, Lucasfilm Ltd., September 22, 2005, exhibit 944.9.

Powerpoint, PAY FOR PERFORMANCE: 2009 Salary Budget Recommendation, Executive Review, January 21, 2009, Lucasfilm, LUCAS00189288, exhibit 945.13.

Powerpoint, FSM Pre-Focal Analysis 2007, Intel, January 2007, 76583DOC002007, exhibit 393.13.

Powerpoint, FSM Pre-Focal Analysis 2007, Intel, January 2007, 76583DOC002007, exhibit 393.16.

Powerpoint, FSM Pre-Focal Analysis 2007, Intel, January 2007, 76583DOC002007, exhibit 393.28.

Powerpoint, FSM Pre-Focal Analysis 2007, Intel, January 2007, 76583DOC002007, exhibit 393.19.

Powerpoint, GAM SBS UPDATE, 2/11/09, INTEL, 76579DOC00124\_000026, exhibit 396.26.

Powerpoint, TMG Non-Tech Job Audit – HR, Intel, August 25<sup>th</sup>, 2005, 76583DOC008097\_000003, exhibit 397.3.

PowerPoint, Base Pay Comparison Report Support Overview WW 042011, Intel, 765825DOC001211, exhibit 400.17.

Powerpoint, Internal Climate, Intel, 76596DOC017025, exhibit 781.16.

Powerpoint, Base Pay Comparison Report Support Overview WW 04 2011, Intel, 765825DOC001211, exhibit 400.25.

Powerpoint, Adobe, Q1 Workforce Metrics, As of 4 March 2005, Adobe, ADOBE\_000622, exhibit 210.12.

Powerpoint, Retention/Transition Guidelines, Adobe, June 2008, ADOBE\_050724, exhibit 216.5.

Powerpoint, Global Market Analysis, Adobe, exhibit 2486.33.

Powerpoint, 2010 Annual Performance Review, Compensation Training for Managers, December 2009, ADOBE\_100614, exhibit 2487.15.

Powerpoint, Compensation Framework, Insuring Global Consistency, Apple, 231APPLE105345, exhibit 1856.4

Powerpoint, Total Rewards Planning, FY07, September 2006, Apple, 231APPLE095052, exhibit 1855.107.

Google document, Project Big Bang, Revised Comp Proposal – 9/7/2010, exhibit, 1625.2.

Google document, GOOG-HIGH-TECH-00474908, exhibit 1618.12.

LUCAS00188750-LUCAS00188753, exhibit 959.43-959.46.

Intel spreadsheet printout 76579DOC005152\_000017, exhibit 295.17.

Excel spreadsheet, Apple Computer, Inc., 2006 Compensation Analysis, APPLE 231APPLE098912, exhibit 1858.2.

Compensation Analysis and Review Process, Internal Transfer, DRAFT Last Updated 11-23-04, LUCAS00185312, exhibit 716.

Compensation 201 Instructor Guide, Intel, 76583DOC007693, exhibit 2030.65.

Base Salary Structures, Apple, Effective July 15, 2008, 231APPLE009282, exhibit 268.5.

Worldwide Focal 2001 Questions and Answers Intel Confidential, Rev 13, Feb 26, 2001. 76583DOC003753, exhibit 391.4.

WorldatWork: The Total Rewards Association website:  
<http://www.worldatwork.org/waw/aboutus/html/aboutus-what-is.html>.  
Engineering Job Matrix, Pixar, PIX00049042, exhibit 1305.

High-Tech Employee Antitrust Litigation, Consolidated Amended Complaint, September 2, 2011.

Order by Judge Lucy H. Koh, Case5:11-cv-02509-LHK Document382 Filed04/05/13.

Spreadsheet “Employee Type Count by Employer,” provided on February 22, 2013.

Spreadsheet GOOG-HIGH-TECH-00221513.xlsx, tab “Employee Data”.

GOOG-HIGH-TECH-00625148 Contains a courtesy reproduction of a compensation spreadsheet titled 2005 Global Ranges - for MQU May-06.xls.

Exhibit 1600.11 “Google 2004 Salary Ranges”Employer Costs for Employee Compensation –

September 2012, United States Bureau of Labor Statistics,  
<http://www.bls.gov/news.release/pdf/ecec.pdf>.

LUCAS00188913 (Exhibit 711.29) for 2008 Salary Structure.

LUCAS00188912 (exhibit 360) for 2006 Salary Structure.

**APPENDIX C**  
**FIGURES**

Figure 1.

Salary Table 2011-DCB										
Incorporating a locality payment of 24.22%, Rates Frozen at 2010 Levels										
For the locality pay area of Washington-Baltimore-Northern Virginia, DC-MD-VA-WV-PA										
Effective January 2011, Annual Rates by Grade and Step										
Grade	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10
1	22115	22854	23589	24321	25056	25489	26215	26948	26977	27663
2	24865	25456	26279	26977	27280	28082	28885	29687	30490	31292
3	27130	28034	28938	29843	30747	31651	32556	33460	34364	35269
4	30456	31471	32486	33501	34516	35531	36546	37560	38575	39590
5	34075	35210	36346	37481	38616	39752	40887	42022	43158	44293
6	37983	39249	40514	41780	43046	44312	45578	46843	48109	49375
7	42209	43616	45024	46431	47838	49246	50653	52061	53468	54875
8	46745	48303	49861	51418	52976	54534	56092	57649	59207	60765
9	51630	53350	55070	56791	58511	60232	61952	63673	65393	67114
10	56857	58752	60648	62544	64439	66335	68230	70126	72022	73917
11	62467	64548	66630	68712	70794	72876	74958	77040	79122	81204
12	74872	77368	79864	82359	84855	87350	89846	92341	94837	97333
13	89033	92001	94969	97936	100904	103872	106839	109807	112774	115742
14	105211	108717	112224	115731	119238	122744	126251	129758	133264	136771
15	123758	127883	132009	136134	140259	144385	148510	152635	155500	155500

Source: United States Office of Personnel Management: <http://www.opm.gov/oca/11tables/pdf/DCB.pdf>  
 See Hallock (2012), p 69.

Figure 2.  
Example of a Job Evaluation Worksheet

	Degree 1	Degree 2	Degree 3	Degree 4	Degree 5	Total
Technical Ability	100	200	300	400	500	
Leadership	40	80	120	160	200	
Responsibility	30	60	90	120	150	
Communications	20	40	60	80	100	
Working Conditions	10	20	30	40	50	

See Hallock (2012), page 71.



Figure 3.

Example of a Job Evaluation Worksheet for a particular Job

	Degree 1	Degree 2	Degree 3	Degree 4	Degree 5	Total
Technical Ability	100	200	300	<u>400</u>	500	400
Leadership	40	<u>80</u>	120	160	200	80
Responsibility	30	60	<u>90</u>	120	150	90
Communications	20	40	<u>60</u>	80	100	60
Working Conditions	<u>10</u>	20	30	40	50	10
						640
						Job Evaluation Points

See Hallock (2012), page 72.

Figure 4.  
Job Evaluation Points

Engineer I (530 points)	Engineer II (640 points)	Senior Engineer (935 points)
<hr/>		
Job Evaluation Points		

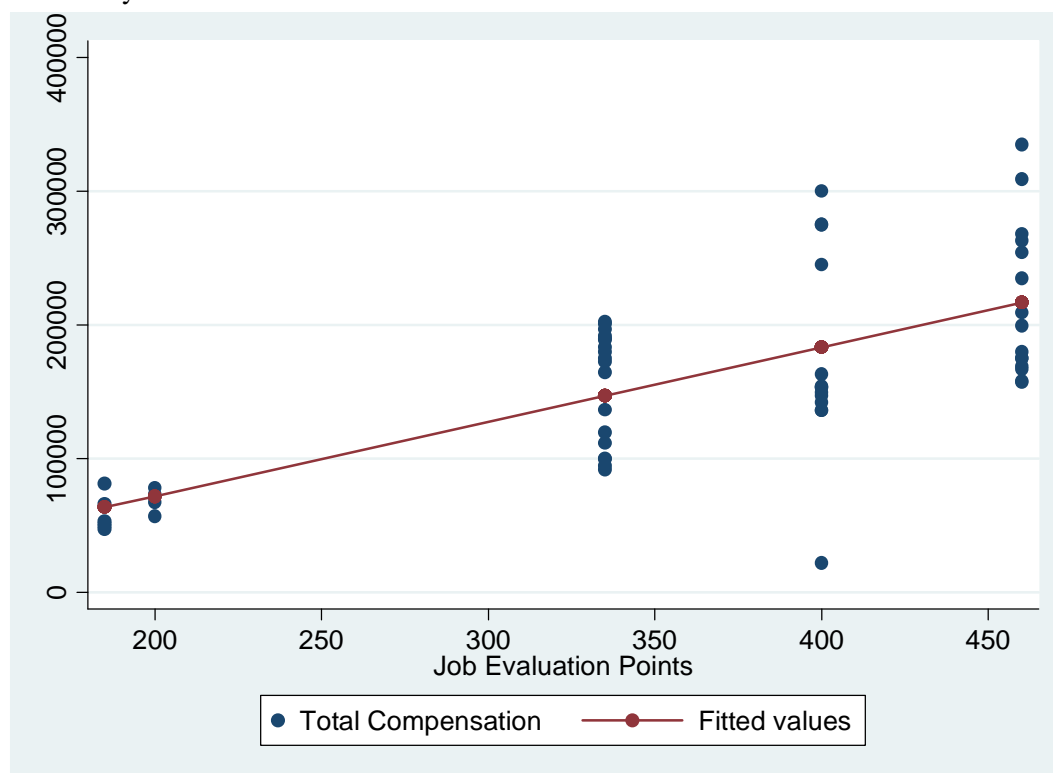
See Hallock (2012), page 72.

Figure 5.  
Evaluation Points in Different Job Families

Engineer I (530 points)		Engineer II (640 points)	Senior Engineer (935 points)
			Job Evaluation Points
Admin I (211 points)	Admin II (411points)	Admin Lead (657 points)	
			Job Evaluation Points
Legal Assistant (385 points)	Junior Attorney (590 points)		Senior Attorney (895 points)
			Job Evaluation Points

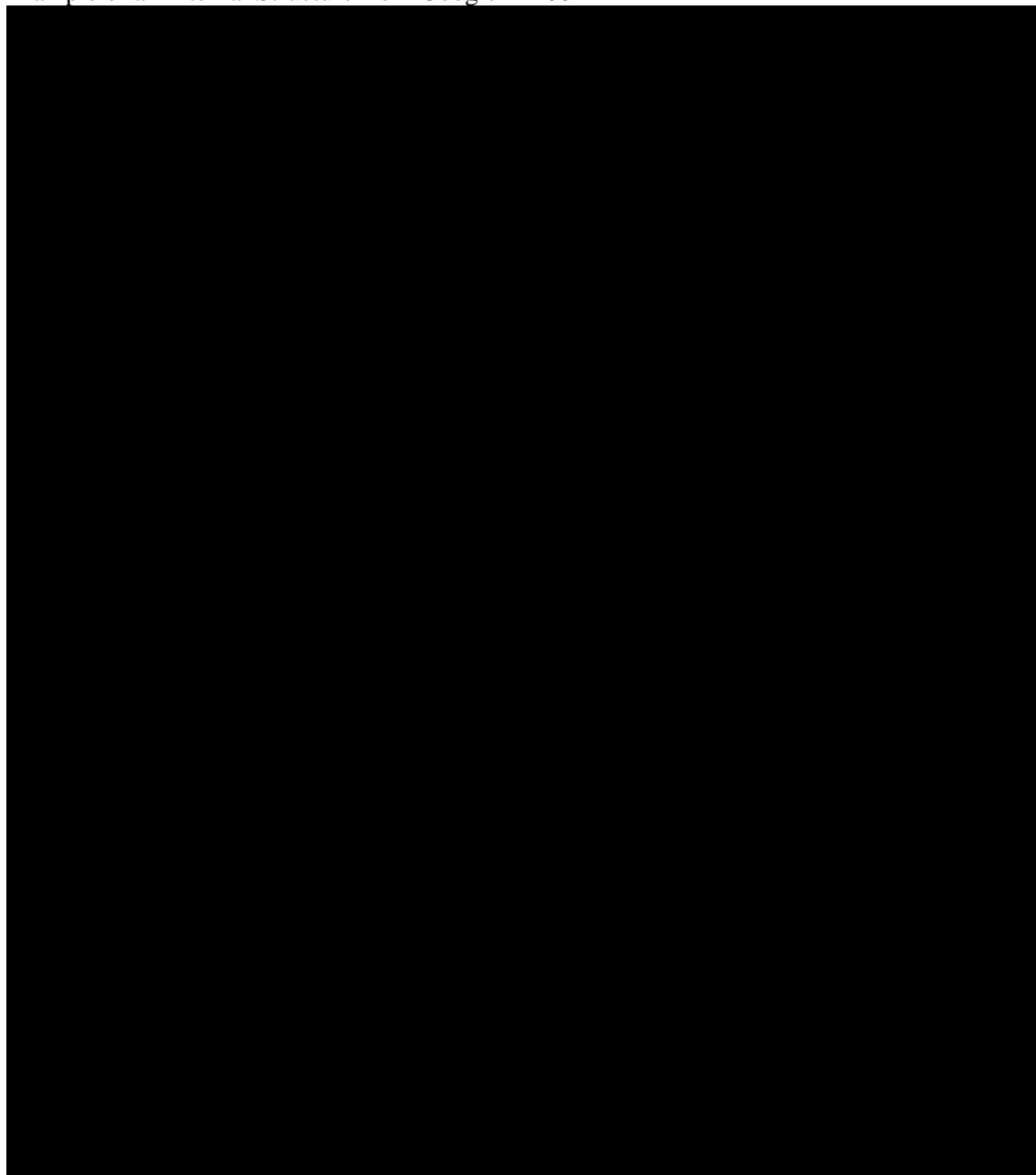
See Hallock (2012), page 75.

Figure 6.  
Market Pay Line



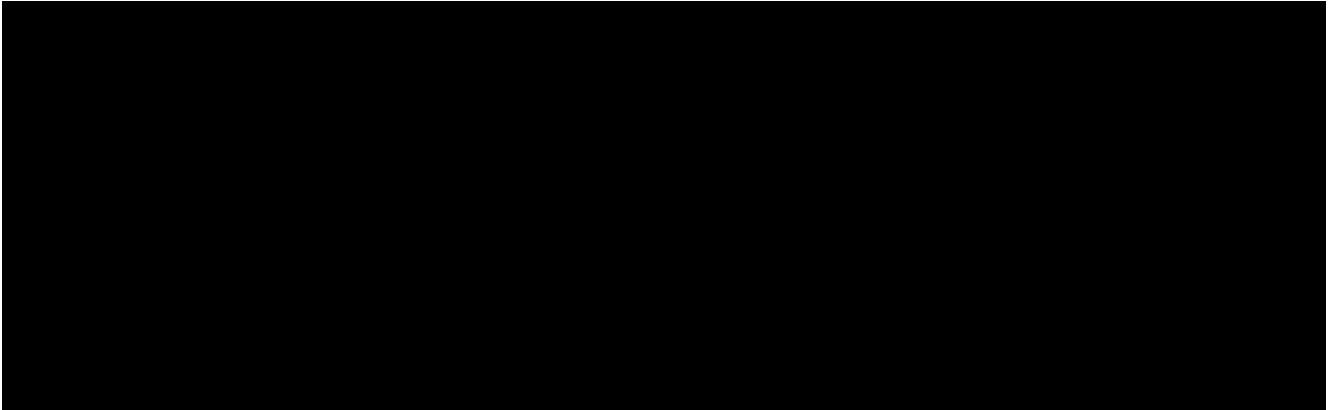
See Hallock (2012), page 79.

Figure 7.  
Example of an Internal Structure from Google in 2004



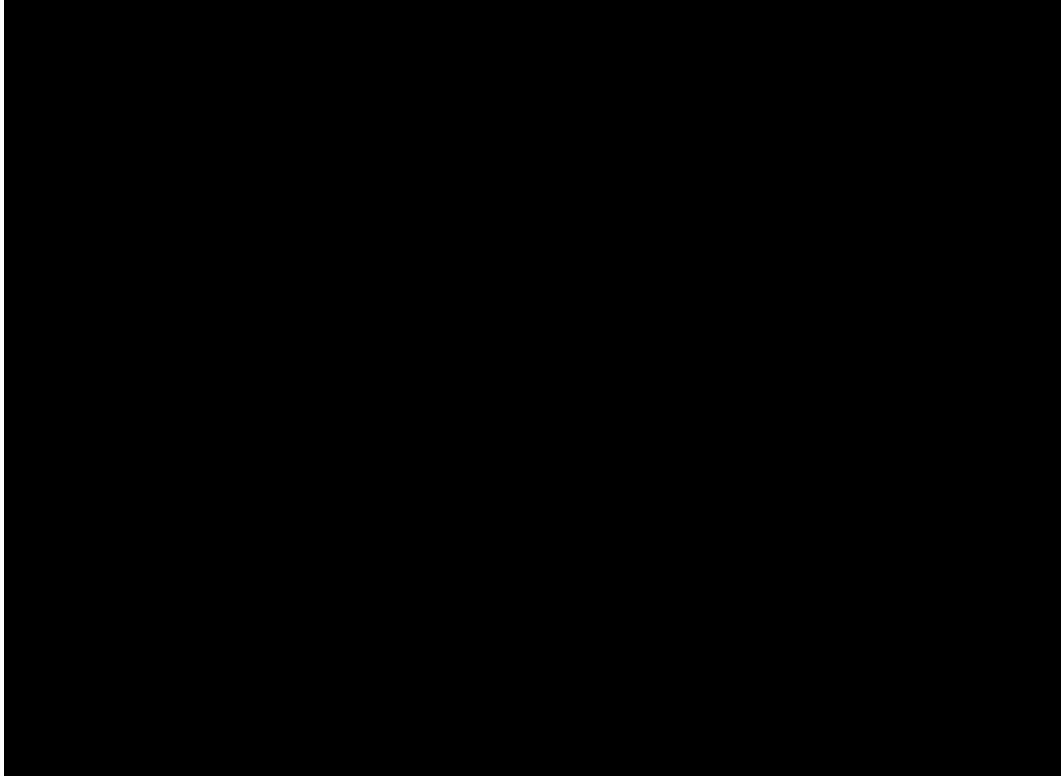
Source: Created from data in spreadsheet GOOG-HIGH-TECH-00221513.xlsx, tab "Employee Data".

Figure 8.  
From Apple Proposed FY10 Annual Grant Guidelines



Source: Powerpoint, Apple Inc., Compensation Committee, Apple, August 5, 2009, 231APPLE10067, exhibit 1854.5.

Figure 9.  
Apple Salary, Total Cash and Bonus



Source: Excel spreadsheet, Apple Computer, Inc., 2006 Compensation Analysis, APPLE 231APPLE098912, exhibit 1858.2

Figure 10.  
Apple Salary Structure in Table

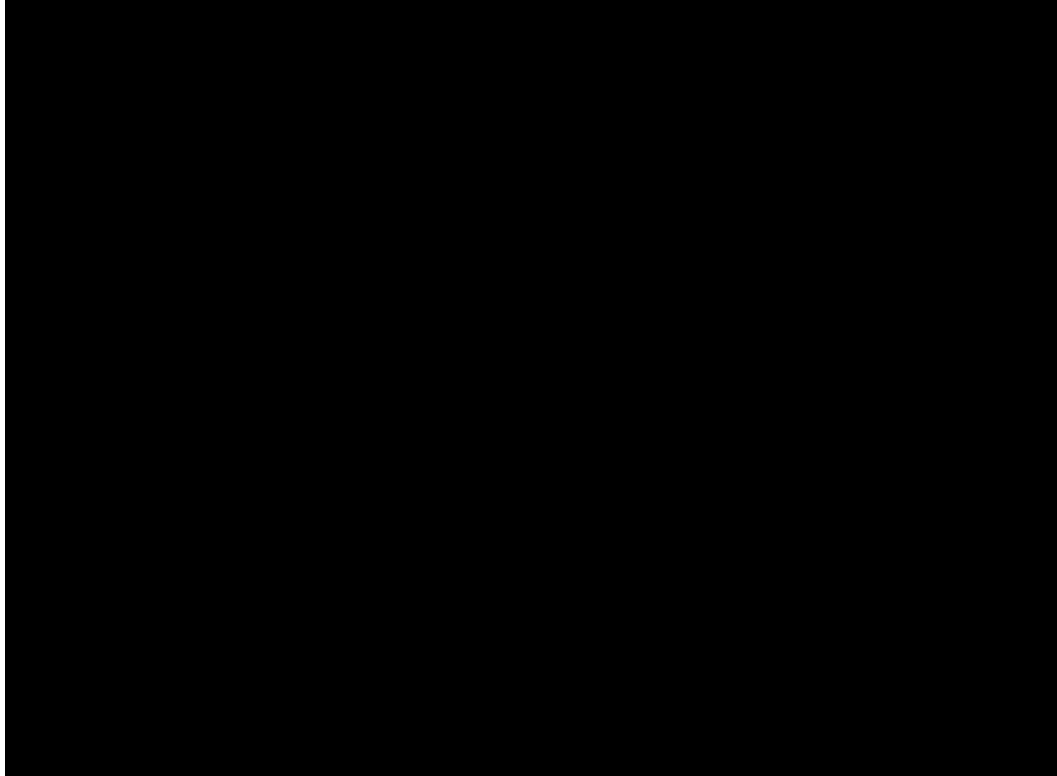


Note: Annual Salaries in Thousands.

Source: Base Salary Structures, Apple, Effective July 15, 2008, 231APPLE009282, exhibit 268.5.



Figure 11.  
Apple Salary Structure in Figure



Source: Base Salary Structures, Apple, Effective July 15, 2008, 231APPLE009282, exhibit 268.5.

Figure 12. Google, Merit Increase Matrix

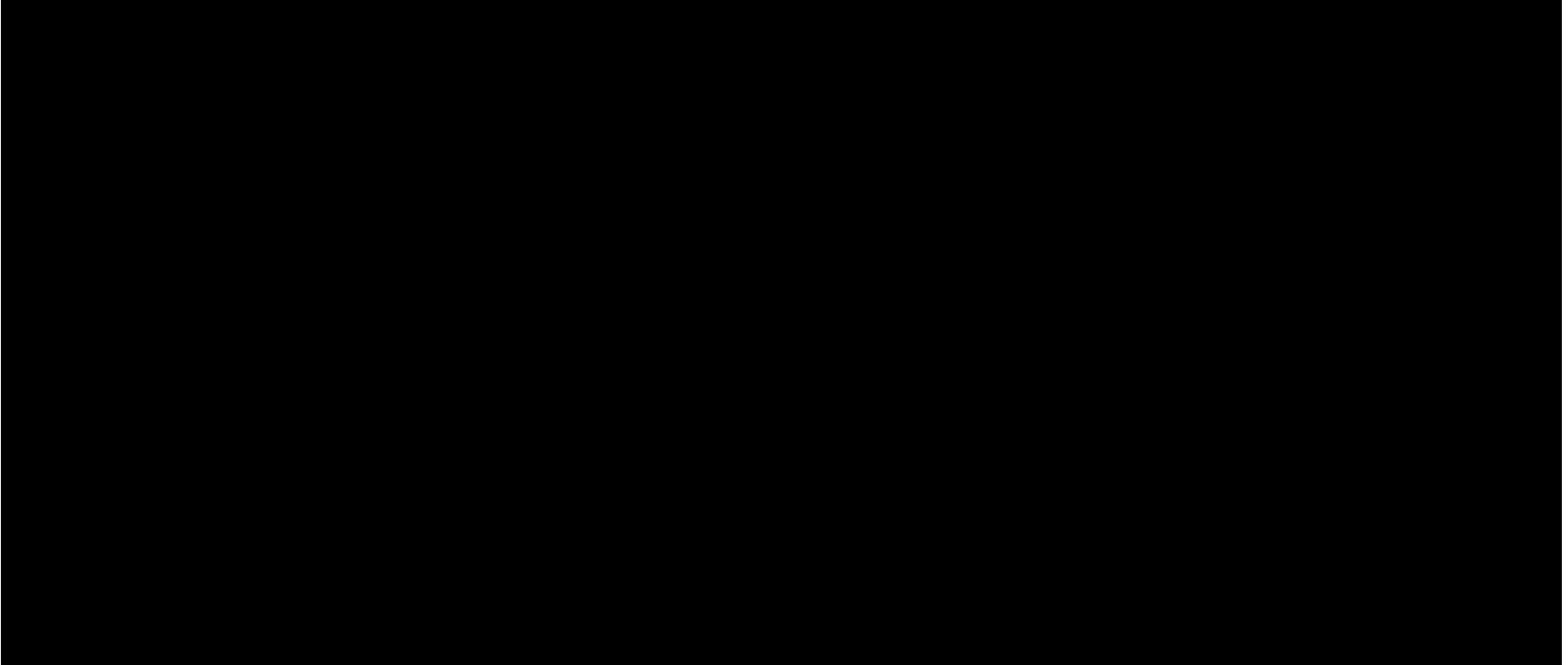
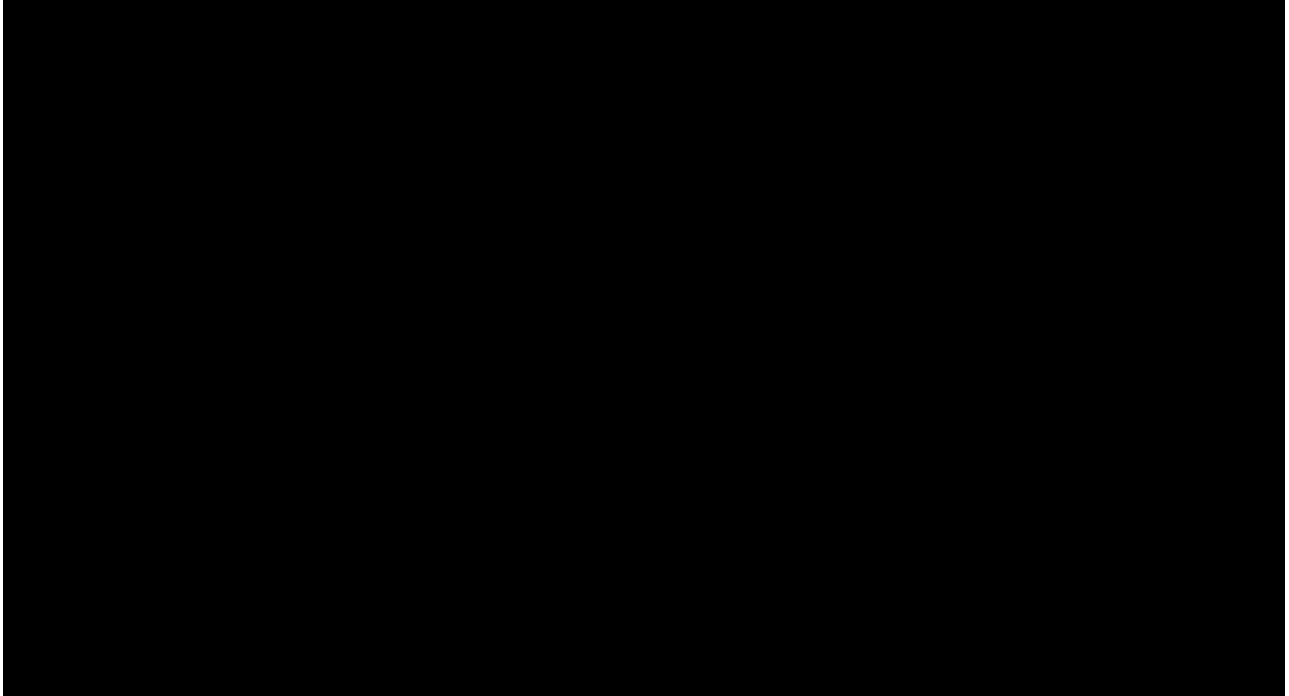


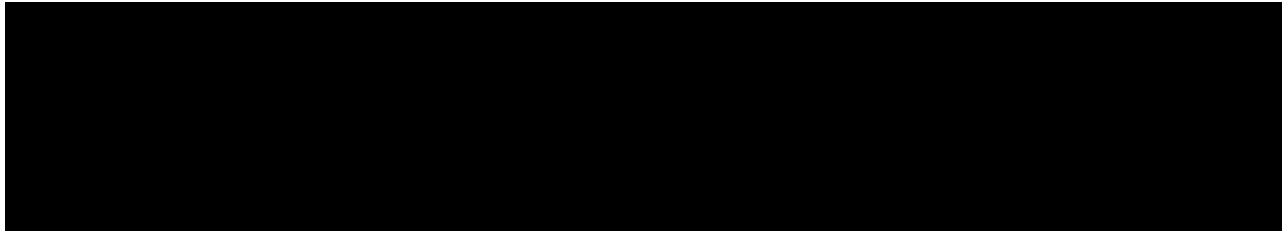
Figure 13.

Adobe Salary Increase Matrices, 2009



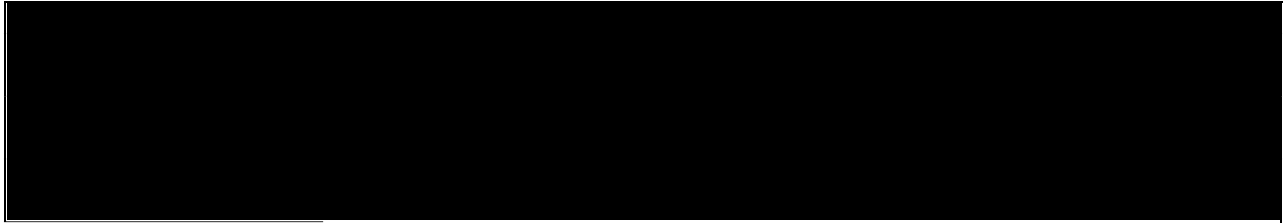
Source: Powerpoint, 2010 Annual Performance Review, Compensation Training for Managers, December 2009, ADOBE\_100614, exhibit 2487.15.

Figure 14.  
Apple Total Rewards Planning



Source: Powerpoint, Total Rewards Planning, FY07, September 2006, Apple, 231APPLE095052, exhibit, 1855.107.

Figure 15.  
Excerpts from Adobe Global Market Analysis  
Salary Matrices



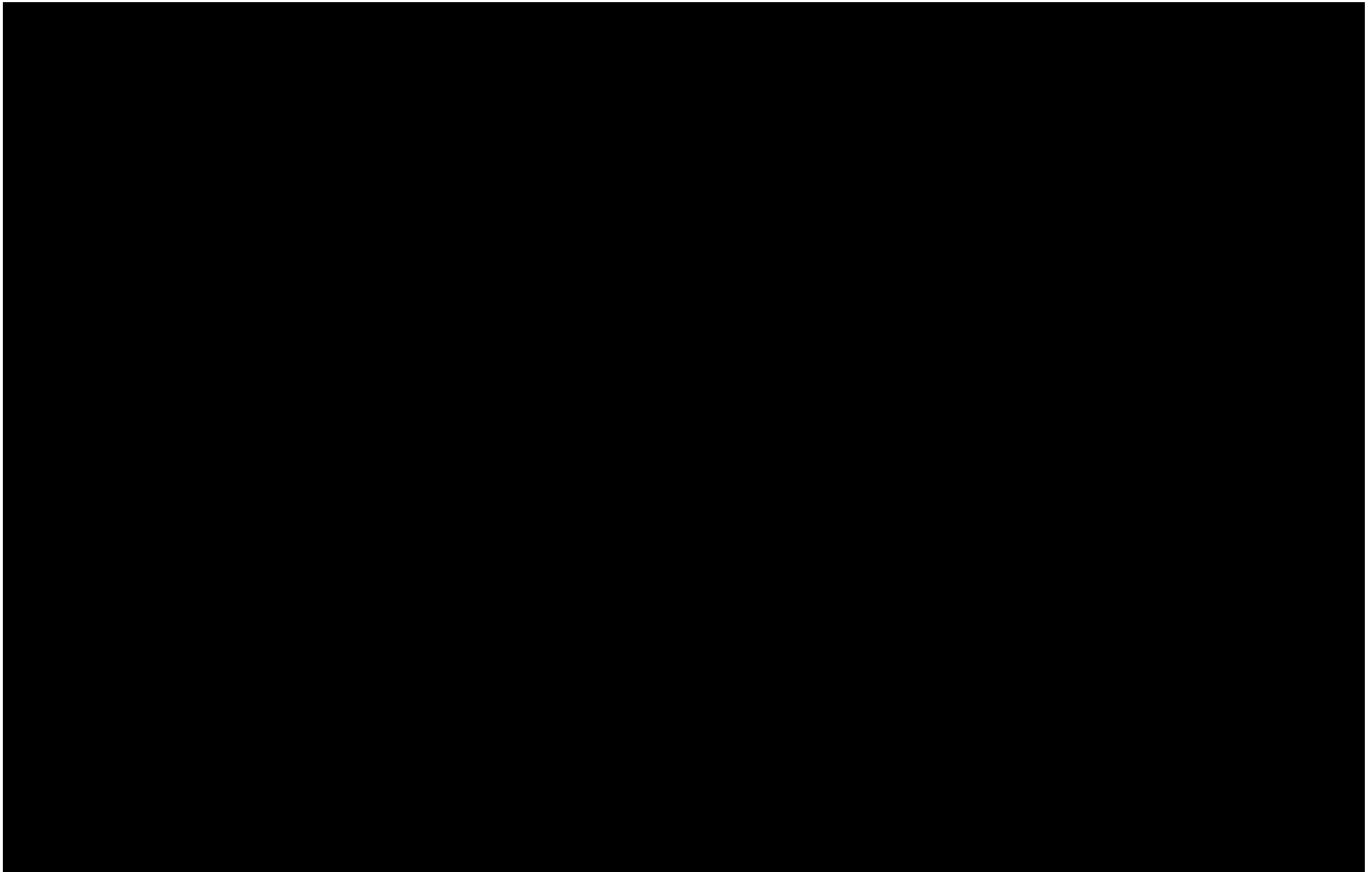
Source: Powerpoint, Global Market Analysis, Adobe, exhibit 2486.33.

Figure 16.  
From Intel “Applying Pay Report to Focal Decisions”



Source: PowerPoint, Base Pay Comparison Report Support Overview WW 042011, 765825DOC001211, exhibit 400.17.

Figure 17  
Google Data



May 10, 2013

Expert Witness Report of Kevin F. Hallock

Figure 18

